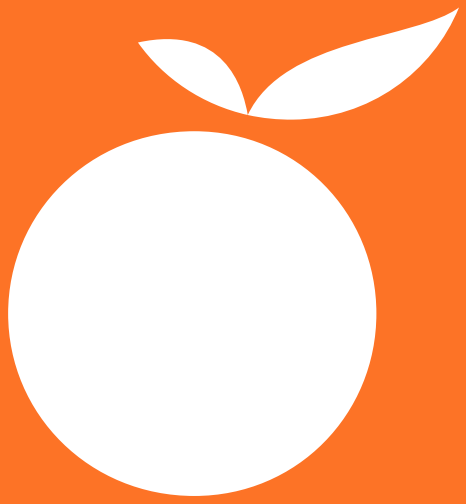
tt performance suite

Best Practice Guidelines



Producing HTML5 content
with tt knowledge force from Release 2015 r2 upwards

Contents

1 Goal

It has always been our goal to ensure that content produced with tt knowledge force - especially e-learning content – can be played on as many of our customers' browsers as possible without having to install plug-ins or any additional programs. This is what motivates us to do our utmost to fully exploit the potential of HTML4, both in relation to the content produced and the authoring environment. Thanks to our determined effort down through the years, we have succeeded in ensuring that content has always remained 'runnable' regardless of the browser version used. All this, despite the fact that certain browsers have occasionally adopted a rather lax interpretation of web standards.

Due to the widespread popularity of smartphones and tablets, HTML5 – and its associated technologies – has become widely accepted as the logical next big thing after HTML4. HTML5 offers a state-of-the-art basis with a potential for technical innovation that far exceeds that of HTML4. Functions, whose implementation involved a huge effort back in the heyday of HTML4, have since become standard in HTML5, or at least much easier to realize.

Just like every technological leap, the transition from HTML4 to HTML5 was not instantaneous, but actually took several years. Even to this day, many companies still use a browser which is either fully incapable of supporting HTML5, or leaves a lot to desire, as their standard browser. Fully aware of this, tt performance suite has included an optional HTML5 export function since Release 2014 R2, thereby giving our customers the freedom to decide the technical format in which they wish to distribute their content. The big advantage of this is the fact that all previous HTML4 content still works in the usual reliable manner and that nothing has fundamentally changed in relation to the modus operandi.

Despite the fact that HTML5 provides a state-of-the-art basis, browser-specific differences are regrettably unavoidable, as was the case with HTML4. Browser manufacturers continue to offer their own unique interpretation (or extensions) of the HTML5 standard, as demonstrated by the varying depiction of content from one browser to another. This is why we intend to continue to officially support only those browsers that are explicitly listed under our system requirements. Therefore please make sure to test your content against the specific browsers and devices which are being used for the content consumption.

The aim of this White Paper is to describe how to use the Document Editor in ttps to produce content based on HTML5 for mobile devices. This will involve highlighting certain general requirements and demonstrating the procedure with the help of best practices. This will be based on Release 2015 R2 of tt performance suite.

Should you have any questions that are not addressed in this document or require assistance in creating a configuration that has been optimized for HTML5, please don't hesitate to get in touch with your Professional Services Consultant.

2 Introduction

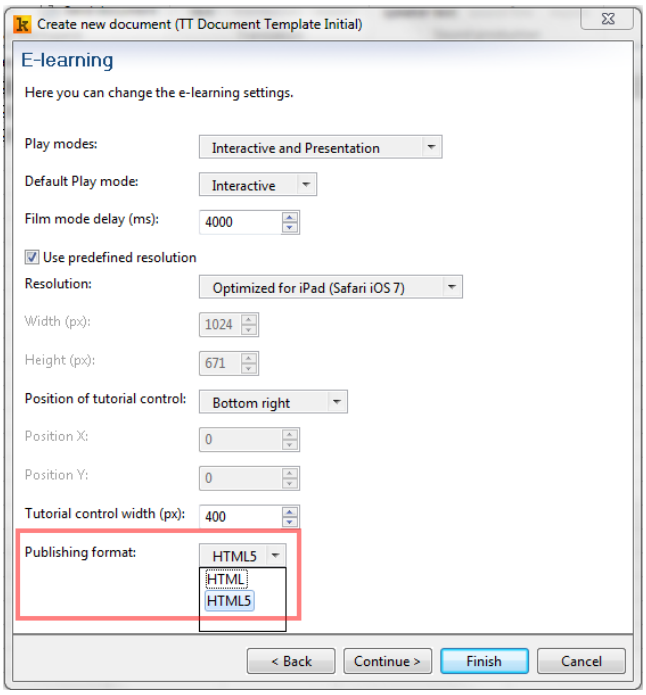
We have great expectations regarding the potential of learning via mobile devices. The developments of the last few years have shown that the future of mobile learning will, to a large extent, be shaped by touch screen technology. This is why we have optimized the functionality of our HTML5 Player to suit mobile learning via touch screen devices. In reacting to this technological shift, we

also seized the opportunity to take a closer look at many functions and examine whether certain aspects could be implemented in a much simpler and more sustainable manner, thereby making life much easier for both authors and end users. Needless to say, HTML5 content can also be accessed via desktop systems. In some cases, this involves changes (some of which are only temporary) in the functional scope of HTML5 compared to the familiar HTML4 content creation procedure.

As already mentioned in the introduction, many of our customers continue to use browsers that don't support HTML5. This is why we are not in a position to fully concentrate on the production of HTML5 content and thereby fully doing away with the familiar HTML4 creation process. Therefore, so long as the IT departments of the majority of our customers have not yet made the technological leap to browsers fully compatible with HTML5, the HTML4-based Document Editor will continue to dominate the production process. This means that the WYSIWYG (What-you-see-is-what-you-get) view in the Document Editor will continue to display content in the HTML4 format. So long as authors pay attention to the constraints outlined in the following sections, they will not be surprised by the final HTML5 export, and HTML5 e-learning lessons will run like clockwork. During the transition phase from HTML4 to HMTL5, certain aspects of the authoring workflow will have to be adapted and you may even have to do without some of your favorite functions. The following sections are dedicated to the aspects to which you, as an author, have to pay particular attention.

2.1 First steps

HTML5 content can be created in the usual manner in the Document Editor. As soon as you have created a TT document, you will have to decide on the export format. You can choose between standard HTML (i.e. HTML4) or HTML5:



However, it will still be possible to change the publishing format following the creation of content. But this may involve certain functional differences, as outlined in the following sections.

Basically, templates or presentation objects can, for the most part, continue to be used in exactly the same manner. There is no need to create new templates (or modify existing ones) in order to avail of HTML5. However, in the event that e-learning lessons involve the use of the functions listed

below, you will have to make changes to the templates prior to the production of content. One example involves the use of triggers which, by their very definition, cannot work on mobile devices (such as the 'mouse over' trigger type). Major adaptation work will only be necessary in the case of test questions and assessment evaluation templates, as outlined in the 'Test questions' section.

Since the Document Editor only shows the HTML4 view, it does not directly display the WYSIWYG view for HTML5. We therefore recommend creating a local export and then checking the local content on your browser. When doing this, please remember that many browsers, particularly Internet Explorer and Chrome, do not allow HTML5 websites to be accessed locally due to security reasons. This is currently only possible with Firefox. So whenever you want to see a quick preview, you will need to export the e-learning lesson and then open it in Firefox. Needless to say, you still have the alternative of returning the document to the Workbench and displaying the preview from there.

2.2 Benefits of HTML5

Due to the cutting-edge technological basis of HTML5, it was possible (among other things) to streamline our code base, or, in other words, to redevelop it from scratch. The following benefits are therefore only available in the case of a HTML5 export:

- Significantly improved performance
- Modification of content to suit the size and orientation of the device's display, scalability on desktop systems
- Swipe gestures as a way of navigating through content

2.3 SmartComponents

Our decision in 2014 to introduce SmartComponents as an interface for programming new functions in tt knowledge force led to the creation of a powerful new instrument that allows a quick and flexible reaction to customer-specific requirements. This made it possible to expand the range of functions in the Document Editor either through the customers' in-house developers or as part of our own customization services – all this regardless of the fixed development cycles at tts.

In addition SmartComponents also have the advantage of simplifying the creation of repetitive and complex interaction designs, while easy-to-use Wizards make it much easier for authors to avail of these functions.

In light of these many advantages, we have decided to include the SmartComponent concept as an integral part of the HTML5 export. The following sections will therefore repeatedly refer to SmartComponents which facilitate particular functions – especially in relation to the HTML5 export. Those SmartComponents have been made available with Release 2016 as part of the SmartComponent library.

3 Triggers and animations

3.1 Entry animations

The following effects can be used in the HTML5 export:

- Wipe up/down/to the left/to the right
- Fly in (all variations)

- Blink
- Fade in, fade out
- Appear
- Hide
- Play sound

When using qualified Feedbacks during test questions, the 'e-learning context' function in the trigger and animation properties is often used. This is no longer possible. The functionality is now provided by the SmartComponent "qualified feedback" as explained in the 'Test questions' section. Furthermore, it is currently not possible to use the 'Must not proceed until all animations have been played' option, as this would interfere with the swipe gestures, nor it is possible to use the animation transition "After click/key"

3.2 Exit animations

When designing the HTML5 export, we decided to rely on swipe gestures for navigating within e-learning content. If a step were to include page exit animations, it would not exactly be intuitive from the end users' perspective if they had to wait for the exit animations to finish after having already swiped to proceed to the next step. This explains why there are no exit animations in the HTML5 export.

3.3 Animation triggers

As already mentioned, mobile devices with touch screens are the main focus of the HTML5 Player. This is why the only trigger types that are supported are those which can be explicitly set in motion via a 'click' (equivalent to tapping the display of a touch screen device with one's finger). This includes the following triggers:

- Exclusive effect on click of trigger object
- When the trigger object is clicked
- When an object other than the trigger object is clicked

All other trigger types are not supported in the HTML5 export.

3.4 Control triggers

The 'Tutorial control' section will explain 'control triggers' in greater detail.

4 Simulations

Based on experience gathered during various customer projects, especially e-learning courses involving soft skills or particular products have to be accessible on mobile devices – for example to ensure that salespersons are able to use their tablet to familiarize themselves with the latest innovations or changes while on the way to visit a customer. On the other hand, software simulations are not so important in this regard as they primarily involve desktop applications. This explains why we have decided to generally offer software simulations (i.e. recordings) only in the form of a 'swipeable' sequence of screenshots for the HTML5 export. These screenshots include the familiar Recorder frames.

Usually, simulations seem to be interactive since the recorded actions are automatically reproduced via the 'Interaction' function within the Document Editor. Due to the fact that interactions are only rarely used in Softskill trainings or the like, we have decided to fully drop them, and it won't even be possible to insert them manually. In the event that this restriction proves to be problematic, you still have the option of using the 'Next' type of control trigger to navigate to the following step, for example.

5 Test questions

5.1 General info on test questions

From the end-user perspective, the biggest change in the HTML5 export is the fact that test questions can now only be answered once. All answers already given will be saved when moving on to the next step, and test questions can only be reset by reopening the e-learning lesson.

Swipe gestures will work as expected: If you swipe from one test question to another, either the answer given will be saved or the test question will still have to be answered.

The option of jumping from one test question to another without actually answering them already existed in the Assessment mode in the HTML4 export (via the 'Free browsing' setting). This is the only option in the HTML5 export. The Assessment modes 'Drill and practice' (in all its variations) and 'Question pool' (for the random selection of test questions) are no longer available. It will also no longer be possible to activate a time limit for either the Study or Assessment modes.

Finally, please be also aware that “Profiling”, a function to enable variable-based evaluations of test questions, is currently not supported in the HTML5 export.

5.2 Creating test questions

As an experienced author, you will notice that the biggest changes involve the creation of test questions. The use of appropriate SmartComponents is now obligatory when creating test questions. It is no longer possible to create test questions via the familiar tools in the Document Editor. This may initially give the impression that your options have been considerably reduced due to the fact that the previous, highly generic creation process in the Editor allowed a great deal of flexibility. But when you take a closer look, you will see that the new procedure involving SmartComponents opens up a whole new world of opportunity, allowing you to compile test questions which are more attractive and innovative than ever before. What's more, the SmartComponents have been developed in such a way that allows you, the author, to change the appearance of checkboxes or radiobuttons (for example) just as you please. Up to now, this could only be done via extensive customization on the part of tts, a service which was sometimes subject to a fee.

In practice, this means: Whenever you want to create a Drag&Drop test question, you need to use several SmartComponents to represent the drag elements and drop targets. And then – as has always been the case – you have to activate the Test Question mode for the step. The same applies to the creation of single-choice and multiple-choice test questions. As things currently stand, no other types of test question are supported.

But: The set of ready-made SmartComponents for test questions will be continually evaluated and expanded as the need arises. Needless to say, it is still possible to develop individual SmartComponents to facilitate test questions based on crosswords, memory games, scrambled letters etc. –

something which up to now has been impossible, or at least extremely complicated, using the standard Document Editor tools.

In addition to the creation of various test questions, SmartComponents are also necessary for the actual answering of test questions by end users. The 'Tutorial control' section will explain that the familiar tutorial control procedure no longer exists in the HTML5 export. This means that standard fields for displaying the Comment and Feedback text, as well as the buttons for evaluating the answers, have been dropped. These functions now rely on SmartComponents as well, which are available in the SmartComponent library from Release 2016.

Furthermore, authors will in future also have to use SmartComponents when creating qualified feedbacks. Qualified feedbacks facilitate the giving of a context-specific reaction whenever a user gives a correct, wrong or partly correct answer to a question. Up to now, this was controlled via triggers and animations which were able to trigger the appearance of presentation objects in a particular 'e-learning context'. The 'e-learning context' is currently not available in the HTML5 mode. Apart from this we believe that using this SmartComponent will make the creation of qualified feedback far easier than before.

5.3 Assessment evaluation

The assessment evaluation page is now also full of surprises. Granted, this was always quite a satisfactory feature back in the glory days of HTML4 – assuming you used it in accordance with the way it was predefined during the creation of your configuration. But as soon as you attempted to modify it – by editing its template – you were confronted with a dizzying array of special functions that required an in-depth understanding of obscure mechanisms. Basically, modification was a bit of a nightmare. And what's more, it was impossible to easily create individual evaluations for single e-learning lessons.

In our drive to get rid of unnecessary conceptual and technological ballast, here we have also opted to rely on SmartComponents and decided to drop the old assessment evaluation page from the HTML5 export. You now have the choice of inserting the appropriate SmartComponents directly into the content or offering a new assessment evaluation page as a step template.

6 Tutorial control

6.1 General info

As already mentioned in the 'Simulations' section, our main focus – when it comes to mobile training material – now lies on soft-skill and product training etc. As demonstrated by many of our customers' projects and unlike software simulations, projects of this nature rarely use the standard tutorial control and instead primarily rely on individual navigation controls. This is why the familiar standard tutorial control no longer exists in the HTML5 export.

6.2 Control triggers

However, the absence of a standard tutorial control doesn't mean that you don't have any navigational controls. You just have to create a navigation control with the help of presentation objects combined with control triggers which, if necessary, can be specified in step templates. This means that authors don't have to pay any attention to the particulars of the HTML5 export. Yet another

advantage is the fact that this control system also works like a dream in the HTML4 mode and you can modify it yourself whenever you want.

However, you do need to remember that not all the available control triggers can be used in the HTML5 export due to the fact that many of the triggers impact on functions in the HTML4 Player. You can currently use:

- Next/Previous
- Go to target step
- Activate/Deactivate sound
- Close

6.3 Comment and Feedback text

Classic tutorial control, however, also includes Comment and Feedback text in addition to the purely navigational aspect. This text would not be displayed in the absence of tutorial control. This is why we also provide a suitable SmartComponent which dynamically inserts text. This is of particular importance when creating test questions – as already mentioned in the 'Test questions' section.

The classic tutorial control also includes buttons for the evaluation of answers and display of a sample answer in the case of test questions – buttons which would be missing in the HTML5 export. And yes, there are also special dedicated SmartComponents for this scenario. The standard package therefore includes both a SmartComponent for displaying the automatically created and possibly adapted Feedback text, as well as a SmartComponent button that triggers an evaluation and subsequently displays the sample answer.

Needless to say, the SmartComponent for displaying the instruction text (in particular) can also be used in simulations, thereby ensuring that the respective Comment test is also visible in addition to the sequence of screenshots.

7 Additional details

7.1 Play modes

Three play modes are available as standard in the Document Editor: Interactive, Presentation and Film. These play modes are particularly important when e-learning content includes software simulations. Actually, the Interactive mode is only relevant to software simulations, as is the Presentation mode which could be useful to get simulation steps to play automatically when 'Next' is clicked.

As already mentioned above, simulations in the HTML5 export are basically a 'swipeable' sequence of screenshots – in other words, here they are already a type of 'Presentation mode' in which one can change steps without having to execute certain interactions. Therefore we have decided to drop the Interactive Mode in the HTML5-case.

And what about the Film Mode? Educationally, the Film Mode can indeed make sense for at least some individual steps in an e-learning session. Therefore we do not object including the functionality in future iterations of the HTM5 export. For the time being, though, we have decided to not include the Film Mode, as well.

7.2 Parallel paths

Highly complex e-learning lessons sometimes include parallel paths that provide optional additional information. However, our customers rarely avail of this function, except in a few isolated cases. This is why we have decided not to support parallel paths in this initial function set of HTML5.

7.3 Videos

During the age of content production under HTML4, it has been possible to insert videos as objects directly into steps when creating content in the regular manner. However, these videos play automatically in the end-user view, without allowing navigation control or any other type of control. In light of these limitations, we have developed a SmartComponent that facilitates both navigation control and additional options.

The use of this SmartComponent is obligatory when you want to integrate videos into HTML5 content. So please remember to always insert the appropriate SmartComponent whenever you want to embed videos.

7.4 Sounds

Unfortunately, in the HTML5 export there is a slight problem with sequentially playing back multiple sound files in release 2015 R2. It can happen that the sound snippets are correctly started but truncated after a short while. We are currently fixing this issue for release 2016. But in the meantime there is a solution: Just use a single sound file and temporally synchronize animations etc. on the basis of that longer sound.

7.5 Info regarding certain platforms and browsers

Please note that you may encounter security-related restrictions when it comes to playing media (sound or video) on some platforms (e.g. iOS). This means that it not always possible to automatically play a video or sound directly in an e-learning step due to the fact that some browsers require the user to perform a particular manual action to play the video or sound. If such a situation arises, you can get around the problem by incorporating a button with triggers (for example) which triggers the playing of sound or video. To ensure that content is as compatible as possible with all platforms, we recommend doing this for all your content.

7.6 Known Issues

7.6.1 Swiping on large trigger objects

Whenever you use large objects to trigger other objects your end users might run into the problem that it is not possible for them to swipe to enter the next or previous step. This is caused by a collision between the navigational swipe and the trigger event to show the other objects. Currently you can only circumvent this by either avoiding large areas which serve as trigger objects or by using smaller transparent objects as trigger objects.

7.6.2 Deactivated steps are shown in HTML5 export

Currently the step status “deactivated” is not taken into account when you create an HTML5 export. So these steps are still included in the output. Except for deleting those steps and moving these to temporary tt documents there is no workaround.

8 Publishing your HTML5 content

There are many ways to distribute your HTML5 content to end users. Certainly our Professional Services team will be able to discuss a wide range of possibilities with you. Amongst these are Apps, exports to your Learning Management Systems, Deep Links, etc. However, there is one publication method which is the most straight-forward one: Let end users access the content from ttps' built-in Web Publisher. Now, your concrete needs might vary but if your end users access your content e.g. predominantly with their Smartphones you might want to optimize your Web Publisher view to comply with this usage pattern. Again, our Professional Services team is gladly available to discuss your requirements and implement the best fitting solution.

9 Summary

The following table provides a general overview of the components that can be used in the Document Editor. Please note that this table does not include all the detailed information included in the earlier sections, which is why it is absolutely essential that you take the time to carefully read through all the preceding sections.

Component/Function	HTML4	HTML5
Adapt to size of display	✗ (size is fixed)	✓
Navigation via gestures	✗	✓
Presentation objects	✓	✓
Templates	✓	✓
Animations	✓	(✓) only selected, only entrance animations
Triggers	✓	(✓) only selected
Sound	✓	✓
Videos	(✓) without play control	✓ by using SmartComponents
Software simulations	✓	(✓) only as sequence of screen-shots
Test questions	✓	(✓) by using SmartComponents

Component/Function	HTML4	HTML5
Assessment mode	✓	✓
SCORM-compatible	✓	✓
Tutorial control	✓	✗ via Control Triggers
Play modes	✓	(✓) only as type of Presentation Mode
Parallel paths	✓	✗