EPUB Changes CC 9.0 To CC 9.2

Douglas Waterfall
Architect, Adobe InDesign Engineering

Summary

What Is New	
Text	Markup related attributes (ex Language- direction) independent of "Preserve Local Overrides" setting.
	Support additional CSS properties CJK (Chinese/Japanese/Korean)/ME (Middle East) `list-style-type`(s), `-epub-text-align-last`, and gradients on Paragraphs.
	Support for Table Regional Cell Styles.
	Japanese: support for per-character Ruby and Auto Tate-Chu-Yoko (TCY).
	ME (Middle East): Paragraph and Character direction now supported through `dir` tag attribute.
Images	Control for packaging existing image instead of having ID generate a new one.
	Automatically detect and re-use duplicate generated images to save space.
	Transforms applied to Images preserved through CSS3 Transforms.
Groups	Children now maintain their position via CSS3 Transforms.
Media	Support Custom Layout settings on Audio/Video.
	Applied transforms through CSS3 Transforms.
Edge Animate	Support the export of placed Edge Animate files to EPUB3.
UI	Object Export Options available in context menu.
Packaging	Additional warning messages to highlight problems during export.
	Added `<!DOCTYPE html>` in `<spine>` chapter files to EPUB3 exports.
	Added `properties="cover-image"` to EPUB3 exports
Footnotes	Control for iBooks Reader Pop-up Footnotes.

What Has Changed	
Text	Resolved problem with bullets when converting to text including font embedding, custom bullets with fonts, and spacing between custom bullets and text.
	Resolved problems with Nested Styles including redundant `<span>` tags, bad markup of Language, and markup failure when a Dropcap was included.
	Resolved problems with Dropcaps including those set to 1-char and 1-line, font embedding, and float property not respecting paragraph direction
	Generated CSS for Ruby now based on `class` instead of `id`.
	Resolved problem where attributes applied to Ruby base text were not being emitted properly.
	Resolved problem with Table Cell Right Inset mapping to CSS.
	Improved granularity of most-used-language calculation applied to <body> tag on per html document basis.
	Resolved problems with color conversion and the handling of tint in Paragraph Styles, Table Cells Styles, Table alternating row/column fills.
	Resolved problems with Nested Style CSS not preserving overlapping Character Style priority.
Images	Generated image filenames try to use original filename, no longer add `_opt` or `_fmt` suffixes, and use `.jpg` instead of `.jpeg`.
	Resolved rasterization problems with off-by-pixel, PNG of GIF and JPG images, and incorrect resolution value.
	No longer auto-generate alt-text based on the image filename, now it is left empty.
Objects	Revised CSS and Markup for Object Custom Layout Settings.
	CSS for floating Objects now prevents overlap.
	Objects which are Hidden, on non-Visible Layers, or marked as non-Printing will now be skipped.
	Resolved problem where Inline TextFrames were removed from the Paragraph.
	Presence of TextOnPath on an Image will now trigger automatic rasterization of the Object.
UI	Removed ignored control "Settings apply to anchored objects".
Packaging	Replaced `com.apple.ibooks.display-options` with metadata for EPUB3 exports.
	Resolved problem with `page-progression-direction`, Unique ID, and EpubCheck failure involving javascript.

Contents

Packaging

EPUB3

- Removed `ibooks com.apple.ibooks.display-options` file from `META-INF` directory and use metadata instead.

```
<meta property="ibooks:specified-fonts">true</meta>
```

- Added `<!DOCTYPE html>` in `<spine>` chapter files.

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml" xmlns:epub="http://www.idpf.
org/2007/ops">
```

- Added `properties="cover-image"` to EPUB3 exports.

```
<item id="x205.png" href="image/205.png" media-type="image/png"
properties="cover-image" />
```

EPUB2

- Removed `page-progression-direction` attribute from `<spine>`.

  This only appeared in right-to-left documents (ME) but it is not a valid attribute in EPUB2.

Problems Resolved

- Value entered for Metadata Unique ID field would result in a EPUB that would fail EpubCheck.

  This field adds an **additional** `<dc:identifier>` to the metadata. The identifier marked with `id="bookid"` is used by InDesign and the devices/readers to obfuscate/un-obfuscate embedded fonts.

```
<dc:identifier id="bookid">urn:uuid:94CD0F4D-9ADA-4EC3-9E23-
D1D4C9F4BA5E</dc:identifier>
<dc:identifier>urn:isbn:1234567890</dc:identifier>
</metadata>
```

  The value of this special identifier also appears in the `toc.ncx` file.

```
<ncx xmlns="http://www.daisy.org/z3986/2005/ncx/" version="2005-1">
<head>
<meta name="dtb:uid" content="urn:uuid:94CD0F4D-9ADA-4EC3-9E23-
D1D4C9F4BA5E" />
```

- EpubCheck would fail if javascript is included in the EPUB3 export via the EPUB Export Dialog/Advanced tab.

  The semantics of this inclusion is that all XHTML files in the `<spine>` are marked up to include these javascript files and a result they are required to declare that they are scripted, thus:

```
<item id="Chapter1" href="Chapter1.xhtml" media-type="application/
xhtml+xml" properties="scripted" />
```

- The metadata property `dcterms:modified` was not generating the proper timestamp.

User Interface

Removed

- **Settings Apply to Anchored Objects** from EPUB Export Dialog/Image tab.

    This had no effect in CC 9.1.
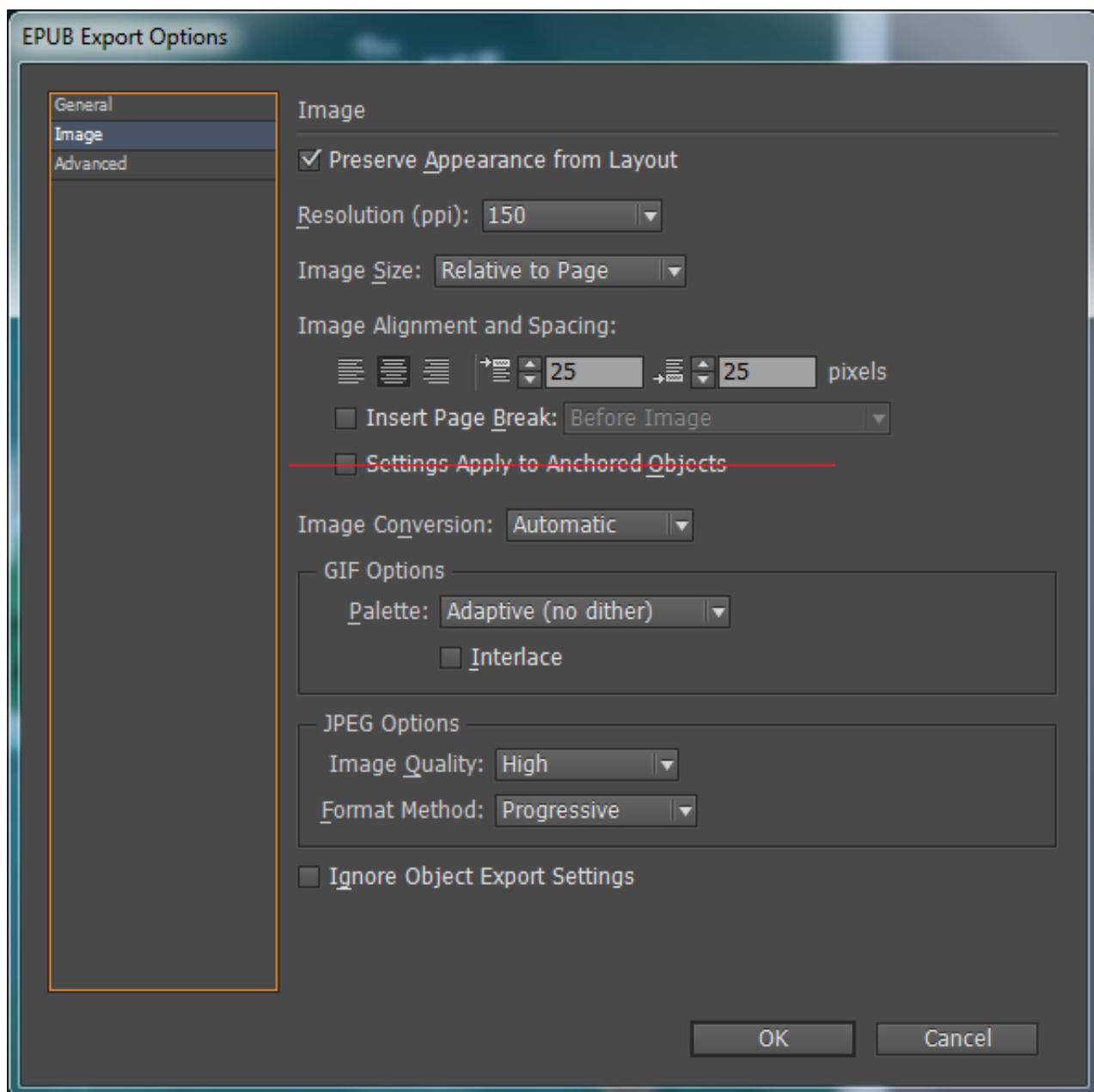
New

- **Object Export Options** added to Object Selection Context Menu.
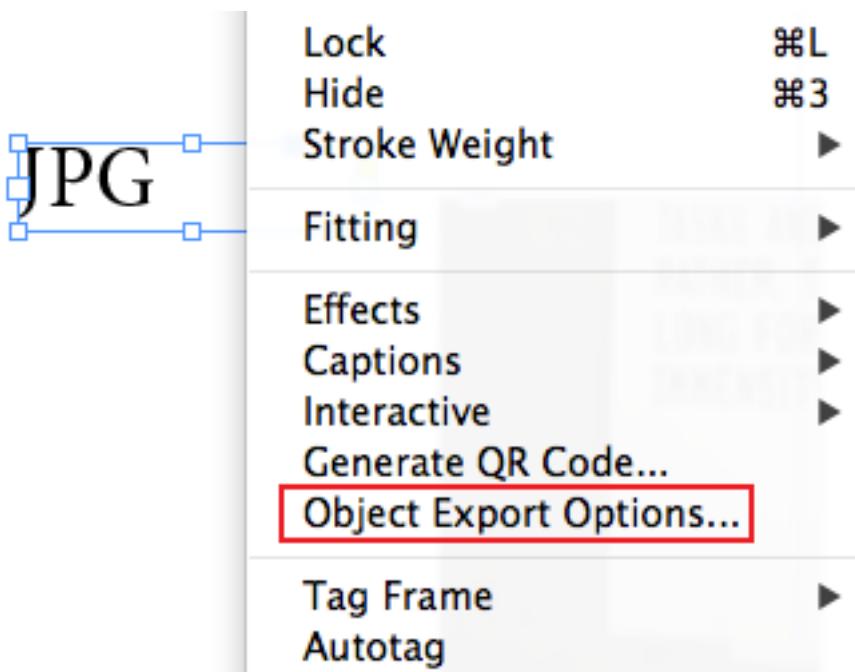
- **Inside a Pop-up** footnote placement option for EPUB3.

  What was a checkbox before is now a 3 way dropdown. See Text section for more details about the markup generated by this new option.
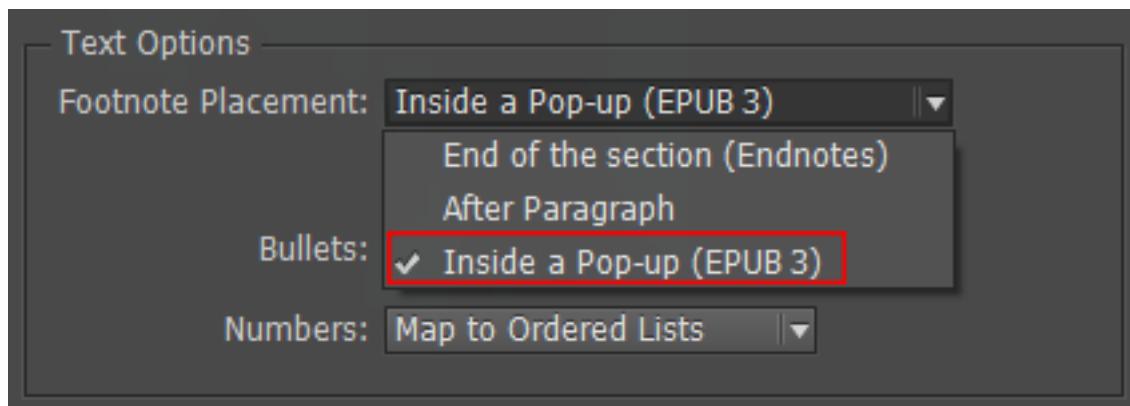
- **Use Original Image** has been added to the Export Dialog and Object Export Options Dialog.

  This new control requests that the export simply use the placed image rather than doing our own rasterization. See Images section for more details.
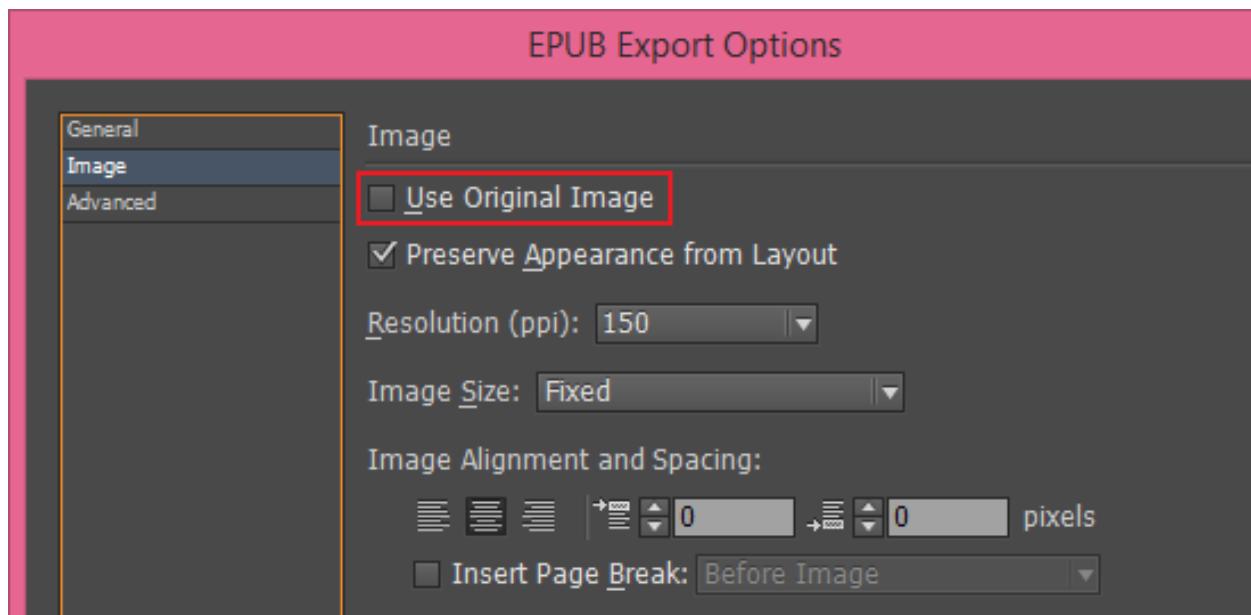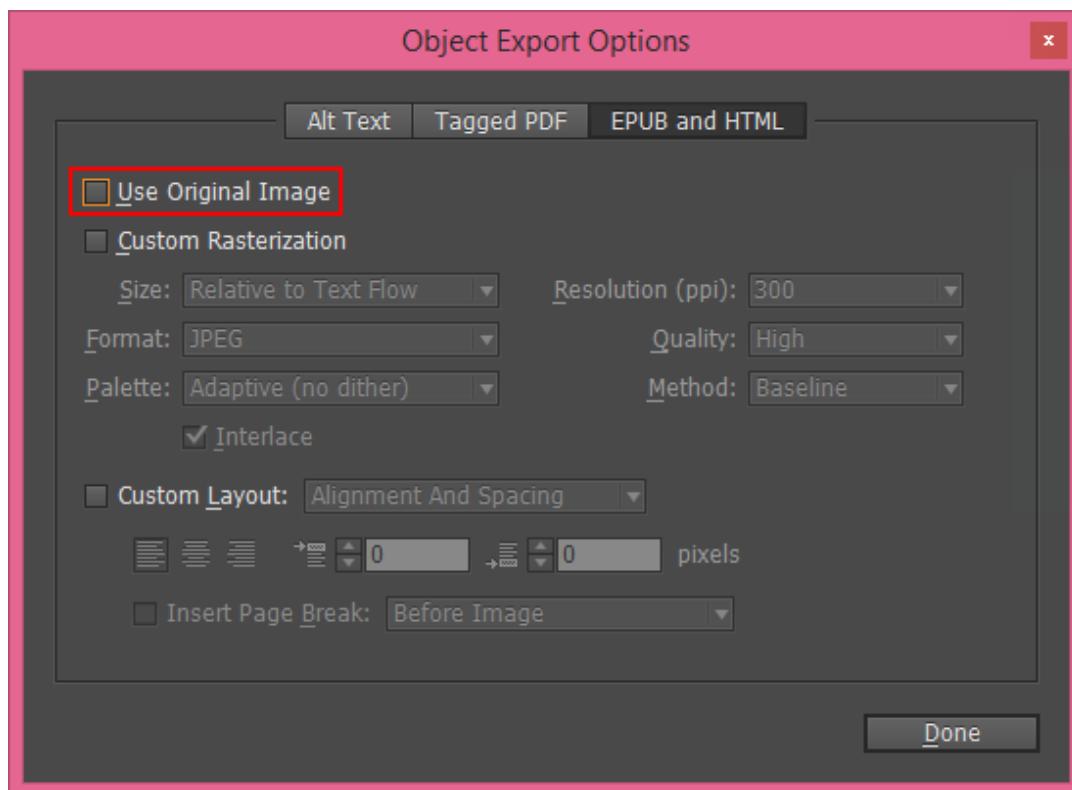
Problems Resolved

- All the Paragraph Styles were not being listed in the Split Document drop down in Export Dialog/ Advanced tab.

Objects

First, let us agree on some terminology as InDesign Engineers use different terms from the UI which can lead to confusion when we communicate with you. Consider the following:

Object, aka Container or Spline, with a yellow fill and a blue stroke.

It can be transformed (here rotated) relative to its Parent, usually Spread but also Anchored Object..

A Spline is a container of content.

Image , aka Graphic, lives in a Container. It can be cropped, scaled, and otherwise transformed relative to the Parent Container

A common source of confusion is to treat these two entities, the Object/Spline/Container and the Image/Graphic as if they were a single object and call it "An Image".

Since to InDesign these are two very different things, with different behavior, this distinction matters very much. So we will henceforth adopt the term "Graphic" when describing the Image in an Object.

The Object/Container/Spline is the constant here - it is the content PageItems, in this case Text, Graphics, other Splines, etc which can change. An Object which has no content simply has no child PageItem.

Groups are a container of content too - two or more Objects are considered to be children of their Parent Group and they, like a Graphic, are transformed relative to their Parent.

Note that Text Frames appear in the User Interface as if they were a Container with no children - unlike above where the Graphic is a child of the Container. However, this is simply a convenient UI lie - there really is a child PageItem which represents and manages the Text content but InDesign does not let you select it.

In the figure above we have two transforms present - the blue stroked Object has been rotated -15 degrees relative to the Text flow and the Graphic has been rotated +30 degrees relative to the Containing Spline.

Transforms On Objects

Transforms on Objects (such as rotation on the Object containing the Graphic above) were not mapped to CSS in CC 9.1.

There was a special exception to this for Objects with Graphics - we would automatically rasterize the Object in its transformed state, capturing the rotation in the resulting image without any need for CSS.

In CC 9.2 we are now map this transform to our generated CSS for Graphic, Audio and Video Object content, and Groups.

Mapping Of Transforms On Objects To CSS

```
<div class="_idGenPageitem-3 _idGenObjectLayout-3">
    <audio id="bear.mp3-1" class="_idGenPageitem-1" controls="controls">
        <source src="audio/bear.mp3" type="audio/mpeg" />
    </audio>
</div>
```

```
audio._idGenPageitem-1 {
    height:100%;
    width:100%;
}

div._idGenPageitem-3 {
    -webkit-transform:translate(0.000px,0.000px) rotate(330.000deg)
skew(0.000deg) scale(1.000,1.000);
    -webkit-transform-origin:50% 50%;
    display:inline-block;
    height:60px;
    width:60px;
}

div._idGenObjectLayout-3 {
    margin:11px 11px 11px 11px;
}
```

Missing in this list is Custom and Above-Line Positioned Anchored Objects with Text content due to the problems of the height of the Text Frame being variable based on the amount of text.

Note: This new markup and CSS will only apply to Objects with Graphic Content when Preserve Appearance From Layout in the Export Dialog/Image tab is off - if it on we will continue to capture the rotation when rasterizing the Object.

We realize that only a subset of the existing EPUB readers/devices support these properties but enough do, and the direction is that more will, so it was time.

Transforms On Object Content

For Edge Animate and Use Original Image we now emit CSS to preserve the Transform on the Content PageItem relative to the containing parent Object.

We do not yet do this for Video and Audio content.

For Graphic content we rasterize the image and clip it to the bounds of the containing Object so the transform is burned into the image and is thus not necessary.

Anchored Objects
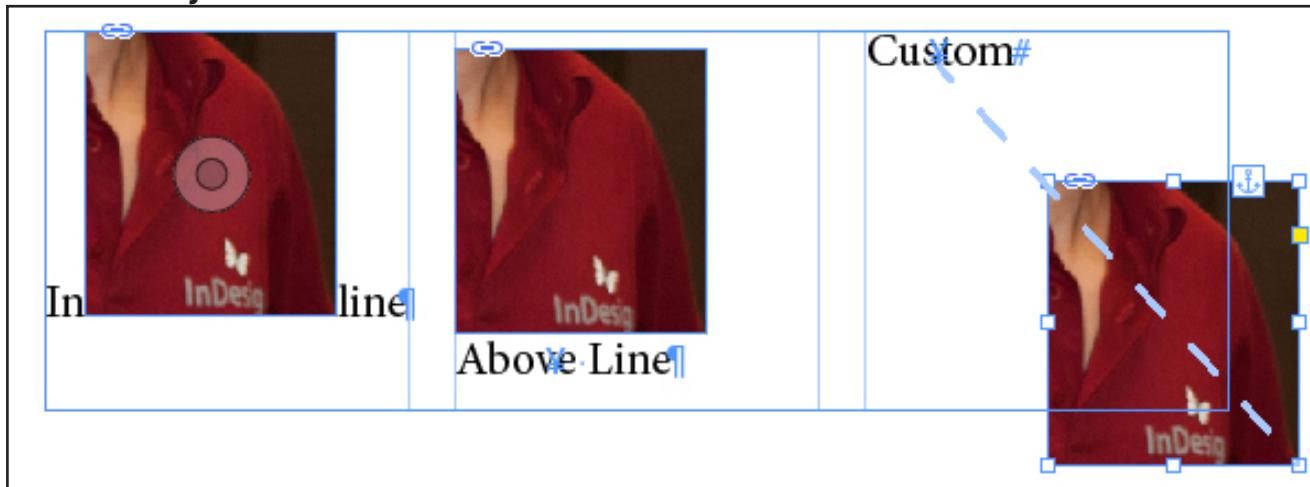
InDesign supports three types of Positions for Anchored Objects - *Inline*, *Above Line* and *Custom*.

The Position simply controls how the Paragraph Composer composes the Anchored Object - in all other ways the Object and its connection to the Text is exactly the same - it is a creature of the Text Flow and is Anchored within a Paragraph.

- **Inline**

    We no longer add a wrapping `<span>` in 9.2:

CC 9.1	`<p class="Para">Inline`
	`    <span class="Basic-Graphics-Frame">`
	`        <img class="_idGenPageitem-1" src="image/278.jpg"`
	`alt="278.jpg" />`
	`    </span>`
	`</p>`

CC 9.2	`<p class="Para">Inline`
	`    <img class="_idGenPageitem-21" src="image/1213.png" alt="" />`
	`</p>`

The handling of Inline Anchored Objects depends on the type of Content of the Object.

The HTML DOM creates a restriction that the `<div>`, `<audio>`, and `<video>` tags cannot be the child of a `<p>` tag and as a consequence for InDesign's purposes the only way for an Inline Anchored Object to stay within the Paragraph is to transform it into an `<img>`.

For Objects with Unassigned (Empty) Content we will force the Object to be rasterized - this is the same behavior as in CC 9.1.

For Object with Text (TextFrame) we have made a major policy change. In CC 9.1 an Inline Text Frame was treated as if it was a Custom Anchored Object - it was removed from the Paragraph and placed after the closing `</p>` tag.

> ## In CC 9.2 Inline Positioned Text Frames will be rasterized!

As rasterizing Text is frowned upon in EPUB export, we will raise a warning message when we do this, to avoid this message you have two choices: 1) in Object Export Options turn Customer Rasterization on, or 2) choose a different Anchored Object Position than Inline.

Note: We understand, of course, that not all usages of Inline Anchored Objects wish to behave like it was a small Inline Glyph. Consider a large Image in a Paragraph all by itself. That could be easily treated as if was a Custom Positioned Anchored Object and removed from the Paragraph.

Our challenge is that we are unable to intuit the user intent and so cannot discriminate between the former and the latter. We are considering providing additional Object Export Controls in a future update to provide more influence over this mapping policy.

For Objects with Audio, Video or Edge Animate we must remove them from the Paragraph and so they are treated as if they were Custom Anchored Objects. This is a change from CC 9.1 where we would leave the `<audio>` and `<video>` tags within the Paragraph generating illegal HTML markup.

For Objects with Graphics we will rasterize the Object.

- **Above Line**

   Prior to CC 9.2 we treated these the same way we treated Inline Anchored Objects - depending on Content Type we would rasterize them.

   This has now been changed in CC 9.2 so they behave the same way Custom Positioned Anchored Objects do - namely we remove them from the Paragraph. See below.

   We think this makes more sense as InDesign treats the Above Line position as having no width and so it does not affect line breaking in the same way as Inline does. It also avoids forced rasterization situations.

- **Custom**

   No change has been made in CC 9.2 for this position. We remove the Object from the Paragraph and if the anchor position is the first TextIndex in the Paragraph then we put it before the opening `<p>` tag and otherwise we place it immediately after the closing `</p>` tag.

Object Export Options/Custom Layout

In CC 9.1 we implemented this control via CSS generated for the Object Style CSS Class.

For CC 9.2 we have had to change direction as we were not able to get all the Layout behavior we wanted through CSS properties. We now generate the following markup wrapper `<div>`s plus generated classes:

Custom Layout:: Floats	

CC 9.1	<pre><div class="myOSFloatLeft">
	
	</div></pre>

	<pre>div.myOSFloatLeft {
	    float:left;
	}</pre>

CC 9.2	<pre><div class="_idGenClearFloat"></div>
	<div class="myOSFloatLeft _idGenPageitem-2 _idGenObjectLayout-1">
	
	</div></pre>

	<pre>div._idGenClearFloat {
	    clear:both;
	}</pre>
	Note: the above class prevents overlapping floating objects with small paragraphs.
	<pre>div._idGenObjectLayout-1 {
	    float:left;
	}</pre>
	Note: Object Style Class is now empty.
	<pre>div.myOSFloatLeft {
	}</pre>

Custom Layout:: Alignment And Spacing	

CC 9.1	<pre><div class="myObjectStyle">
	
	</div></pre>

	<pre>div.myObjectStyle {
	    margin:1px 0 2px auto;
	    text-align:right;
	    page-break-before:always;
	    page-break-after:always;
	}</pre>

CC 9.2	<pre><div class="_idGenObjectLayout-3">
	    <div class="myObjectStyle _idGenPageitem-3">
	
	    </div>
	</div></pre>

	<pre>div._idGenObjectLayout-3 {
	    margin:1px 0 2px auto;
	    page-break-after:always;
	    page-break-before:always;
	    text-align:right;
	}</pre>
	Note: Object Style Class is now empty.
	<pre>div.myObjectStyle {
	}</pre>

New to CC 9.2 we now emit this for Objects with Audio, Video and Edge Animate Content.

Objects With Graphics (Images)

New option for using existing image instead of having InDesign generate a new image. When this option is checked we will map InDesign's transforms to CSS transforms in an attempt to preserve rotation, scale and crop.

Reduced the number of cases where we automatically force the rasterization of the image container.

Improvements in the handling of generated images, either based on the image container, or the resampling of the graphic content:

New support to automatically detect and re-use duplicate generated images to save space.

We now try to retain the original filename of the placed graphic when possible.

We no longer add the `_opt` and `_fmt` suffixes.

JPEG files are now given the file extension `.jpg` instead of `.jpeg`.

Stopped creating alt text based on image filename when user had specified no alt text in the Object Export Options.

Resolved Problems:

- [Automatic] setting in the Export Dialog/Image tab resulted in unneeded conversion to PNG for GIF or JPEG images.

- Resolution value set in Object Export Settings Custom Rasterization was not being honored (it was using the global value instead)

- The dimensions on the rasterized Object image was off by a pixel. We used to floor, now we round.

- Same width is calculated for an image which has a drop shadow and other does not have in case relative to text flow is selected

- Different height and width is emitted in case of an image which always gets rasterised irrespective of Preserve layout setting.

- CMYK images export to HTML5 with incorrect color, and to plain HTML and EPUB if preserve original appearance is unchecked

Groups

We now emit CSS for Groups which attempt to preserve their position of their Child Objects relative to each other. As a consequence:

- Text Frame children are given fixed height and overflow set to hidden.

- Custom Layout settings will no longer be applied to the children.

- Group height and width only supports pixels.

- Group will retain same size and rotation no matter the number of children it ends up with in EPUB/HTML (if some child was dropped, for example).

<table>
<tr><td rowspan="2">CC 9.1</td><td colspan="2">
<pre><div class="_idGenPageitem-2">
    <div class="Basic-Text-Frame">
        <p class="Para">Text In Group</p>
    </div>
    <div class="Basic-Graphics-Frame _idGenPageitem-2">
        <img class="_idGenPageitem-1" src="image/myImage_fmt.png"
alt="myImage.jpeg" />
    </div>
</div></pre>
</td></tr>
<tr><td>
<pre>img._idGenPageitem-1 {
    height:54px;
    width:89px;
}</pre>
</td><td>
<pre>div._idGenPageitem-2 {
    text-align:center;
}</pre>
</td></tr>
</table>

<table>
<tr><td rowspan="2">CC 9.2</td><td colspan="3">
<pre><div class="_idGenPageitem-4">
    <div class="Basic-Text-Frame _idGenPageitem-1">
        <p class="Para">Text In Group</p>
    </div>
    <div class="Basic-Graphics-Frame _idGenPageitem-3">
        <img class="_idGenPageitem-2" src="image/myImage.jpg" alt=""
/>
    </div>
</div></pre>
</td></tr>
<tr><td>
<pre>div._idGenPageitem-4
{
    display:inline-
block;
    height:118px;

position:relative;
    width:183px;
}</pre>
</td><td>
<pre>div._idGenPageitem-1
{
    height:49px;
    left:0.000px;
    overflow:hidden;

position:absolute;
    top:0.000px;
    width:72px;
    z-index:0;
}</pre>
</td><td>
<pre>div._idGenPageitem-3 {
    -webkit-transform:
translate(0.000px,0.00
0px) rotate(32.000deg)
skew(0.000deg)
scale(1.000,1.000);
    -webkit-transform-
origin:0% 0%;
    height:44px;
    left:110.737px;
    position:absolute;
    top:34.898px;
    width:85px;
    z-index:1;
}</pre>
</td></tr>
</table>

Note that only Text Frames which are Above Line or Custom Position Anchored Objects have Graphic Attribute CSS properties generated for them. See Object With Text Content below.

Objects With Text Content (Text Frames)

Text Frames are the only Objects which currently have any CSS properties generated for them and with the additional restriction that it is **only** if the Text Frame is an Anchored Object.

This is unchanged CC 9.1.

Attribute/Value		CSS Property
Text Frame Width		`width`
Text Frame Height		*NO PROPERTY EMITTED*
Stroke Type	ThinThin, ThickThick, ThinThick, TriplePath, ThickThin, ThinThickThin, ThickThinThick	`border-style: double`
	DashedPath, CannedDash4x4, CannedDash3x2	`border-style: dashed`
	CannedDot, JapaneseDots	`border-style: dotted`
	All others	`border-style: solid`
Stroke Weight		`border-width`
Stroke Color		`border-color`
Fill		`background-color`
Text Frame Insets		`padding`

Note: Text Frames within Groups will have a height property and have overflow set to hidden.

Objects With Edge Animate Content

Since CS6 InDesign has supported the ability to place Widgets published from Edge Animate using the **Animate Deployment Package** Publish Target. This Publish setting creates a ZIP file which has the suffix OAM which stands for OpenAjaxMetadata.

New to CC 9.2 we now support the proper pass through of these files through to EPUB3 by wrapping it in an `<iframe>`:

```
<div class="_idGenPageitem-2 _idGenPageitem-4">
    <iframe class="_idGenPageitem-1 _idGenPageitem-3" src="html/Wheel/Assets/
Wheel.html" id="_idGenIframe-1">
    </iframe>
</div>

iframe._idGenPageitem-1 {
    height:100%;
    width:100%;
}

div._idGenPageitem-2 {
    height:208px;
    overflow:hidden;
    width:467px;
}

iframe._idGenPageitem-3 {
    border-width:0px;
}

div._idGenPageitem-4 {
    display:inline-block;
}
```

Note: We also generate some special javascript to prevent user events targeted to the Widget from being delivered to the reader/device.

However, at the time of this writing there are some important caveats to be aware of:

- Kobo Reader on the iPad is the only device reader that renders the content correctly, but the handling of user events is problematic as the reader chrome competes with the widget for events causing it to pop up all the time. We continue to investigate this issue.

- iBooks Reader will not draw images that are part of an <iframe>, though the animation runs and their handling of user events appears to work correctly.

Objects With Text On Path

Text On Path (TOP) is just another Story to InDesign, but with special composition rules and being attached to an Object.

This presents us a problem when trying to map to HTML because there is no real way to represent this in HTML which would match the design intent of the user. In CC 9.1 we simply threw up our hands and just exported the TOP Story next to the Object.

We have now changed this policy in CC 9.2 to no longer **ever** export the TOP Story as live text and as a result the only way to preserve the Text On Path is to rasterize the Object

CC 9.1	```<div class="Basic-Graphics-Frame _idGenPageitem-2">` ` ` `</div>` `<div>` ` <p class="Para">TextOnPath</p>` `</div>```
CC 9.2	```<div class="Basic-Graphics-Frame _idGenPageitem-2">` ` ` `</div>```

Also, we will now issue a warning when you elect to not rasterize the Object and we have to drop the TOP on the floor.

There is a special case for Text On Path on an Object with Graphic Content. As it is not yet possible in CC to selectively rasterize these Objects - this is only controllable on a global level with the **Preserve Appearance From Layout** setting, when an Object contains a Graphic and has Text On Path we will automatically rasterize the Object and generate the warning message "Text placed along the frame path of an image has been rasterized."

Objects With Media

Media objects now honor Custom Layout settings.

Transforms applied to audio and video content are now preserved via generated CSS.

Note: Video/Audio if placed as Inline Anchored Objects will be mapped as if they were Custom Anchored Objects - namely they will be removed from the Paragraph and placed outside the Paragraph tags.

Text

Policy Change For Preserve Local Overrides

We have made a limited change in CC 9.2 to exempt the following five Attributes from being ignored when Preserve Local Overrides is **off**:

- Language

- Text Direction

- Ruby

- Tate-chu-yoko (TCY)

- Bullets & Numbering

We felt that these Attributes are more about the structure of the content rather than the styling of it and for all but one only affect the markup of the HTML rather than the generated CSS.

What this means, in effect, that if you select a range of text and apply a Language of "Estonia", this will no longer be lost when Preserve Local Overrides is **off**.

Bullets and Numbering

We did a lot of work on CC 9.1 with respect to Lists and Bullets and Numbering but there were still customer reported issues that we missed which we have now resolved in CC 9.2.

- Custom Bullets with GID and Font are now replaced with standard bullet character and warning generated.

- Font embedding for custom bullets.

- When bullet and number are converted to text, if they are in composed text, the length of bullet and number is calculated accurately based on text composition data and the styling retained on the bullet.

- Reset margin to zero for bullet and number marker span.

- Bullet position in Right-To-Left Paragraphs is now correctly handled.

- Resolved problem where style containing All Caps applied to list is incorrectly carried over to text after the bullet/number.

- Resolved problem where bullets and numbers converted to Text in vertical Japanese stories were not appearing correctly.

For EPUB3 exports there are now additional CSS `list-style-type` values which we support.

Numbered List Attribute	CSS Property
(katakana) a,i,u,e,o…	`katakana`
(katakana) i,ro,ha,ni…	`katakana-iroha`
Chinese Numbering 4	`cjk-ideographic`
HebrewBiblical…	`hebrew`
HebrewNonStandard…	

Nested Styles and Dropcaps

Nested Styles are a powerful mechanism for programmatically applying Character Styles based on Paragraph content including the ability to apply more than one Character Style to the same range of text.

Nested Styles were supported in CC 9.1 but there were significant problems and confusion, many of which have now been resolved in CC 9.2.

- A combination of Nested Styles and dropcaps led to the loss of the Nested Style markup.
- Nested Styles was adding unneeded empty `<span>` tags.
- Language was not being transferred to the tag for Character Styles applied via Nested Styles.
- Dropcaps set to 1-char, 1-line.
- Font embedding for dropcaps.
- Dropcap `float` property was not respecting paragraph direction.
- Class priority order did not match Style priority order in cases where more then one Style was applied to the same range of text.

Note:Dropcap, nested Styles, line style (first-line), and grep style are only supported when applied as part of a Paragraph Style.. We have added a warning message to point this out.

Per-Character Ruby

We now support per-character ruby (defined by InDesign as ruby strings with spaces in them) by emitting separate `<rt>` ranges for each.

```
<p class="Para">地を通せ
    <ruby>
        ば<rt class="_idGenRuby-1">a</rt>
        窮<rt class="_idGenRuby-1">b</rt>
        屈<rt class="_idGenRuby-1">c</rt>
    </ruby>
だ。智に働けば角</p>

p.Para rt._idGenRuby-1 {
    color:#ec008c;
    font-family:Arial, sans-serif;
    font-style:normal;
    font-weight:normal;
}
```

Note that if the length of the ruby string is less than the number of base characters then we will pad out the remaining base characters with empty `<rt>` ranges.

In CC 9.2 we now rely on the `class` mechanism instead of an `id`, and we have also resolved problems where properties applied to ruby base text were not being properly emitted.

Auto TCY Supported

In vertical Japanese text, any ranges which the J Paragraph Composer determines should be automatically composed as Tate-Chu-Yoko (TCY) will be marked with a generated class.

```
<p class="Para">が立<span class="_idGenCharOverride-1">DVD</span>つ。どこ</p>

span._idGenCharOverride-1 {
    -epub-text-combine:horizontal;
}
```

Language

Improved granularity of most-used-language calculation applied to `<body>` tag

Text Direction

We have removed the use of the CSS2 deprecated `direction` property in favor of the `dir` tag attribute on Paragraph and `<body>` tags.

Note: We attempted to map InDesign's character level direction attribute to the `<bdo>` tag but the resulting behavior did not match what was intended from InDesign. We will continue to investigate this for CC R2.

Color

The mapping of InDesign Color Attributes to CSS Properties was not as complete as it could be in CC 9.1. This has now been improved by the resolution of the following problems:

- InDesign Color to RGB conversion algorithm was incorrect.
- Tints from Paragraph Style Override were lost.
- Tints from Table Cell Style or Override were lost.
- Tints from Table alternating row fills were lost.

Gradient Colors remain a problem for us but we are happy to report that in CC 9.2 we are now able to provide some support for this when applied via a Paragraph Style (not as override, however).

```
p.Para2 {
    -webkit-background-clip:text;
    -webkit-text-fill-color:transparent;
    background-image:-webkit-linear-gradient(0deg,#ffffff,#007fad 17.40%,#d05f94 55.52%,#000000 88.12%);
…
}
```

Other

- Added support for mapping Paragraph Justify Attribute to `-epub-text-align-last`.
- Resolved problem where 4 byte characters in a Style Names does not get translated properly in EPUB/HTML and hence no styling can be applied to the text
- Resolved problem where content in disabled Conditional Text was causing the document to split.

New iBooks EPUB3 Footnote Option

This option changes the markup of the footnote reference and the footnote content wrapper to enable pop-up footnotes in iBooks Reader.

To support this functionality we did two things: the footnote reference gets an `epub:type` and the tag containing the footnote text is changed to an `<aside>`.

This leaves the footnote text hidden and only visible when the reader touches the footnote reference.

End of Section	```html
	<div class="Basic-Text-Frame">
	
	    <p class="Para2">Hello <span class="CharOverride-
	1"><a id="footnote-216-1-backlink" class="_idFootnoteLink"
	href="#footnote-216-1">1World!</p>
	
	    <div class="_idFootnotes">
	        <div epub:type="footnote" id="footnote-216-1" class="_
	idFootnote">
	            <p class="Para"><a class="_idFootnoteAnchor"
	href="#footnote-216-1-backlink">1	A stitch in time saves
	nine.</p>
	        </div>
	    </div>
	
	</div>
	``

Inside a Pop-Up (EPUB 3)	```html
	<div class="Basic-Text-Frame">
	
	    <p class="Para2">Hello <a
	epub:type="noteref" id="footnote-216-1-backlink" class="_
	idFootnoteLink" href="#footnote-216-1">1World!</p>
	
	    <div class="_idFootnotes">
	        <**aside epub:type="footnote"** id="footnote-216-1" class="_
	idFootnote">
	            <p class="Para"><a class="_idFootnoteAnchor"
	href="#footnote-216-1-backlink">1	A stitch in time saves
	nine.</p>
	        </aside>
	    </div>
	
	</div>
	``

Tables

Cell Attributes

In CC 9.1 we emitted markup for an applied Cell Style but due to an error we failed to emit the Class associated with the Cell Style. This has now been resolved.

Resolved problem where right cell inset property was not being emitted properly.

Resoved problem where Paragraph Style Class was not being emiited on Paragraphs in Table Cells.

Regional Cell Styles

These are part of a Table Style and provide the capability to apply a Cell Style to the table based on a region of the table - header, footer, body, etc., in addition to an applied Cell Style and Cell Attribute overrides.

In CC 9.1 these were omitted from the export. This has now been resolved in CC 9.2.

CC 9.1	``` <tr> <td class="myCellStyle"> <p class="Para">1</p> </td> <td class="myCellStyle"> <p class="Para">2</p> </td> <td class="myCellStyle"> <p class="Para">3</p> </td> <td class="myCellStyle"> <p class="Para">4</p> </td> </tr> ```
CC 9.2	``` <tr> <td class="myCellStyle leftColumn"> <p class="Para">1</p> </td> <td class="myCellStyle body"> <p class="Para">2</p> </td> <td class="myCellStyle body"> <p class="Para">3</p> </td> <td class="myCellStyle rightColumn"> <p class="Para">4</p> </td> </tr> ```

Note: InDesign defines a priority when multiple Cell Styles and a Cell Attribute override apply the same Attribute, for example a fill color, on the same Cell.

We currently do not always emit the CSS in the correct order to match the expected order defined by InDesign and this work remains unfinished

Appendix

Error/Warning Messages

CC 9.1
Style source document in book is missing.
Resource : ^1 missing
Link : ^1 out of date
Export images : ^1 failed
Documents : ^1 skipped. (Documents not found or received error during export.)
Fonts : ^1 not allowed to be embedded
Fonts : ^1 missing
HTML pageitem : ^1 may fail epub validation
CSS name collision : ^1 detected.
Found index stories generated in older InDesign. Hyperlink won't be created. Please update index
Found TOC hyperlinks which don't have target text anchor information. Please update TOC with "Make text anchor in source paragraph" option turned on.
Text anchor : ^1 not found
Index page entry : ^1 missing
TOC text anchor : ^1 missing
Drop caps, Run-in style, Line style, and GREP style applied as style overrides are ignored. These are only supported in paragraph styles: ^1 found.
Drop caps used in Bulleted or Numbered list are ignored: ^1 found.
Hyperlink and Ruby overlap is detected. Appearance mismatch is expected: ^1 found.
New In CC 9.2
The "Use Original Image" setting has been ignored for the resource: ^1
Adobe Edge animation export is not supported in EPUB2. To retain animations, export to EPUB3.
Custom Layout settings in Object Export Options have not been honored for group children and inline objects.
Inline objects like text frames, groups etc. have been rasterized.
Bullet character with glyph ID cannot be exported to HTML. Standard bullet character is used instead : ^1 found.
Different style attributes applied on Ruby base are ignored. The style attributes of first character are considered for the entire base: ^1 found.
Text placed along the frame path of an image has been rasterized.
Groups that contain threaded text frames may not appear correctly.
Appearance mismatch may occur when overlapping grouped objects are exported to JPG format. Try exporting to PNG.
Grouped objects are not rendered correctly when exported to JPG format. Try exporting them to PNG.
Color gradients applied on text as character styles or as overrides are ignored. Character color gradients are only supported in paragraph styles.

Color gradients applied on text as paragraph styles are ignored as the paragraph contains Ruby.	
Text placed along the frame path has been ignored.	

Generated Classes

InDesign will create special CSS Classes outside of those generated from the Paragraph, Character and Object Styles to achieve particular composition outcomes and thus more faithfully match the expected behavior in InDesign (to the extent that we can.)

CSS Class Name	Purpose
_idGenParaOverride-#	Maps user-applied Paragraph attribute overrides.
_idGenCharOverride-#	Maps user-applied Character attribute overrides.
_idGenCellOverride-#	Maps user-applied Cell attribute overrides.
Table-Override-#	Maps user applied Table attribute overrides.
_idGenDropCap-#	To support DropCaps
_idGenBNMarker-#	To support Convert-To-Text with Bullets & Numbering.
_idGenRuby-#	To support Ruby.
_idGenStoryDirection-#	Maps vertical and right to left story directions.
_idGenTableRowColumn-#	Maps Table alternating row or column fills.
_idGenPageitem-#	Maps width and height from Objects.
_idGenTablePara-#	Maps Paragraph alignment attributes to Tables.
_idGenClearFloat	To prevent overlap of Anchored Object Floats.
_idGenObjectLayout-#	To support Custom Layout options.
_idGeneratedPreventDefault	To support Placed Edge Animate interactivity.