

# Strong Backwards-Compatibility and Weak Backwards-Compatibility

2018-02-28

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## 1. Introduction

This document is intended to provide some guidelines for the standardization in W3C@Publishing. It also clarifies requirements from Japanese publishers. We would like to request W3C@Publishing to study this document carefully.

## 2. Strong backwards-compatibility

A given version of EPUB is said to be ***strongly backwards-compatible*** with an older version if and only if any EPUB publication conformant to the old version is also conformant to the new version.

[Note: The word “any” does not necessarily mean absolutely any EPUB publication that may exist in theory. For example, EPUB publications using `-epub-ruby-position` are allowed by EPUB 3.0. Since no implementations of this CSS property are known, we can safely eliminate such EPUB publications.]

[Example: EPUB 3.0.1 is strongly backwards-compatible with EPUB 3.0.]

[Example: EPUB 3.1 is *not* strongly backwards-compatible with EPUB 3.0.1, since 3.1 requires “3.1” as the value of the version attribute.]

### Advantages

- No impacts on large corpus of EPUB publications.
- Existing EPUB publications can be handled by software dedicated to the new version.

### Disadvantages

- EPUB publications of the new version cannot be easily distinguished from those of the old version.
- No features of the old version can be abandoned.
- Addition of new features is difficult, since they may crash existing software.

### 3. Weak backwards-compatibility

A given version of EPUB is said to be ***weakly backwards-compatible*** with an older version if and only if any EPUB publication conformant to the old version is translatable to the new version without changing the semantics.

[Example: EPUB 3.0.1 is *not* weakly backwards-compatible with EPUB 3.0, since no translation is needed (hence, strong backwards-compatibility).]

[Example: EPUB 3.1 is *not* weakly backwards-compatible with EPUB 3.0.1 since EPUB 3 publications containing `switch` exist and they are not translatable to EPUB 3.1.]

[Example: OOXML (ISO/IEC 29500-1:2017) is weakly compatible with OOXML (ISO/IEC 29500-1:2008), since namespace rewriting and some minor conversion is required.]

#### Advantages

- EPUB publications of the new version can be easily distinguished from those of the old version since some mechanism for identifying versions can be introduced.
- New features can be added, since old software may reject the new version.
- Existing EPUB publications can be automatically translated to the new version.

#### Disadvantages

- No features of the old version can be removed from the new version.
- Large corpus of EPUB publications will contain both the old and new version, unless every EPUB publication of the old version is converted to the new version, which is unrealistic. Proper use of software for the old version and that for the new version is required.

### 4. Backwards-incompatibility

A given version of EPUB is said to be ***backwards-incompatible*** with an older version if and only if it is neither strongly nor weakly backwards-compatible with the older version.

[Example: EPUB 3.1 is backwards-incompatible with EPUB 3.0.1.]

[Note: EPUB 3.1 uses HTML5 and SVG 1.1, and any future version of EPUB or its successor is unlikely to drop them. Thus, for some documents conformant to the old version, translation to the new version is possible. But it is not guaranteed that *any* document is translatable without changing the semantics.]

### Advantages

- EPUB publications of the new version can be easily distinguished from those of the old version since some mechanism for identifying versions can be introduced.
- Features of the old version can be removed from the new version, since new software may reject the old version.
- New features can be added, since old software may reject the new version.

### Disadvantages

- Existing EPUB publications cannot be automatically translated to the new version.
- Large corpus of EPUB publications will contain both the old and new version. Proper use of software for the old version and that for the new version is required.

## 5. Requirements

- I would like to request strong backwards-compatibility for the EPUB3 family. It was unfortunate that EPUB 3.1 failed to ensure strong backwards-compatibility.
- I believe that the lack of strong backwards-compatibility is acceptable only when extremely significant business advantages cannot be achieved without sacrificing strong backwards-compatibility.
- In ebook formats beyond the EPUB3 family, weak backwards-compatibility is preferable to backwards-incompatibility. However, I understand the desire to abolish archaic features in a new ebook format.