Matterhorn Protocol 1.1

PDF/UA Conformance Testing Model

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Introduction

Templates and document production processes can automate many aspects of accessibility, but the range of necessary checkpoints is extensive and human judgment is required in many areas.

Organizations committed to providing accessible electronic documents require a cost-effective means of ensuring their document's accessibility features are adequate.

Intended for software developers and document testers, the Matterhorn Protocol is designed to foster PDF/UA adoption by specifying a common set of tests to facilitate the exchange of detailed information on PDF/UA conformance.

NOTE: The concepts of "partial conformance" and "severity of non-conformance" are intentionally not addressed in this document.

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Document History

Version	Date	Change
1.0	2013-08-07	Initial release
1.0	2013-10-10	Editorial and typographical corrections.
1.01	2014-02-11	Changed two “Machine” checks to “Human”, updated the description on page 2, formatting changes to improve maintenance, added headings and a Table of Contents to improve navigability.
1.02	2014-04-30	Minor editorial and formatting corrections, moved 08-003 to 01-007.
1.1	2020-11-10	■ Failure condition 13-008 added ■ Clarification note added to failure condition 14-004 ■ Clarification note added to checkpoint 28 ■ Failure conditions 28-002, 28-004, 28-005 specified more precisely ■ Clarification note added to failure condition 31-010 ■ Other minor changes include notes for clarity, minor editorial corrections and PDF tagging using current best-practice.

Background

PDF is the electronic document format found worldwide in every corner of almost every organization that uses computers. The value of PDF may be stated in terms of the capacity to deliver a *stable and trustworthy representation of a document.*

Accordingly, PDF implementers have a special responsibility to ensure reliability and consistency by following clear, specific and detailed industry and normative standards in the development of PDF creation, modification and viewing software.

About PDF/UA

Ensuring content is accessible to users with disabilities presents broad and complex challenges in any technology. ISO 14289-1 (PDF/UA-1) specifies technical requirements for PDF files to ensure a high-quality and consistent reading experience when used by a variety of PDF/UA-conforming processors.

Matterhorn Protocol Checkpoints

The Matterhorn Protocol is a set of 31 checkpoints comprised of 136 failure conditions encompassing file format requirements specified in PDF/UA-1. 87 failure conditions can be determined by software alone, 47 failure conditions usually require human judgment. 2 failure conditions have no specific tests (23-001 and 27-001). Some failure conditions pertain to the document, some to the page and most to individual objects such as tags, tables or annotations.

Key to the Headers in the Failure Conditions Tables

Index	A numerical identifier for individual failure conditions within a given Checkpoint.
Failure Condition	Non-conforming condition present in the PDF file. NOTE: Pathological software behavior (such as "flickering" by using a script to cause animation effects via a series of actions) is not addressed.
Section	A reference to the relevant section in PDF/UA on a paragraph level. "UA1" refers to the PDF/UA-1 standard. The point-separated numbers after the colon refer to a clause in PDF/UA-1. The digits following the hyphen identify a specific paragraph within the clause.
Type	The nature of the tested item. Possible values are *Doc* for aspects of the document as a whole, *Page* for pages inside the document, *Object* for individual data objects, *JS* for JavaScript embedded in the document and *All* where all aspects of the document are affected.
How	While *not determinative* the value of "How" generally indicates the realistic best-practice approach at the present time. Some checkpoints may *always* be decided by *M (Machine)*, some *usually or probably* require *H (Human)* interaction.
See	Certain failure conditions are covered in full by other failure conditions. Such cases are indicated by an index reference in this column.

Additional Reading

- Tagged PDF Best Practice Guide: Syntax, https://www.pdfa.org/resource/tagged-pdf-best-practice-guide-syntax/
- PDF/UA Reference Suite, https://www.pdfa.org/resource/pdfua-reference-suite/
- PDF/UA in a Nutshell, https://www.pdfa.org/resource/pdfua-in-a-nutshell/

Other reading (superseded documents)

- PDF/UA-1 Technical Implementation Guide: Understanding ISO 14289-1 (PDF/UA-1), https://www.aiim.org/Global/AIIM_Widgets/Community_Widgets/Technical-Implementation-Guide-32000-1
- Achieving WCAG 2.0 with PDF/UA, https://www.aiim.org/Global/AIIM_Widgets/Community_Widgets/Achieving_WCAG

PDF/UA-1 Failure Conditions

Checkpoint 01: Real content tagged

Index	Failure Condition	Section	Type	How	See
01-001	Artifact is tagged as real content.	UA1:7.1-1	Object	H	–
01-002	Real content is marked as artifact.	UA1:7.1-1	Object	H	–
01-003	Content marked as Artifact is present inside tagged content.	UA1:7.1-1	Object	M	–
01-004	Tagged content is present inside content marked as Artifact.	UA1:7.1-1	Object	M	–
01-005	Content is neither marked as Artifact nor tagged as real content.	UA1:7.1-2	Object	M	–
01-006	The structure type and attributes of a structure element are not *semantically* appropriate for the structure element. All of the following structure types must be taken into account: <Document>, <Part>, <Art>, <Sect>, <Div>, <BlockQuote>, <Caption>, <TOC>, <TOCI>, <Index>, <NonStruct>, <Private>, <P>, <H>, <H1>, <H2>, <H3>, <H4>, <H5>, <H6>, <L>, <LI>, <Lbl>, <LBody>, <Table>, <TR>, <TH>, <TD>, <THead>, <TBody, <TFoot, <Span>, <Quote>, <Note>, <Reference>, <BibEntry>, <Code>, <Link>, <Annot>, <Ruby>, <Warichu>, <RB>, <RT>, <RP>, <WT>, <WP>, <Figure>, <Formula>, <Form>. NOTE 1: Structure type is not semantically appropriate if the nature of the content inside the structure element does not match the structure type of the structure element. NOTE 2: For any non-standard structure types, the standard structure type to which the type is role-mapped shall be used for validation. NOTE 3: Tables are regular when the number of logical cells is equal in each row after accounting for **RowSpan** and **ColSpan** attributes. While PDF/UA-1 does not prohibit irregular tables, irregular tables are almost always a strong indicator of improper table structure. It may be a good idea to raise a warning when such tables are encountered, but it is not required by the Matterhorn Protocol. NOTE 4: The value of table cell attributes is a function of the cell's semantic role in the table's structure. Therefore, a <TH> cell may not include a **Scope** attribute with an inappropriate value.	UA1:7.1-2	Object	H	–
01-007	**Suspects** entry has a value of true.	UA1:7.1-11	Doc	M	–

Checkpoint 02: Role Mapping

Index	Failure Condition	Section	Type	How	See
02-001	One or more non-standard tag's mapping does not terminate with a standard type. NOTE: Although PDF/UA defines the nomenclature for heading levels above <H6> (<Hn>), these are not standard structure types (as defined in ISO 32000-1) and therefore <Hn> tags must (PDF/UA-1 7.1, paragraph 1) be role-mapped to a standard structure type. According to PDF/UA-1, PDF/UA-conforming processors are expected to ignore such mappings and respect the heading level.	UA1:7.1-3	Doc	M	–
02-002	The mapping of one or more non-standard types is semantically inappropriate.	UA1:7.1-3	Doc	H	–
02-003	A circular mapping exists	UA1:7.1-3	Doc	M	–
02-004	One or more standard types are remapped.	UA1:7.1-4	Doc	M	–

NOTE: All Failure Conditions in Checkpoint 02 apply to entries in the role map dictionary regardless of whether a given tag is used in the structure tree or not.

Checkpoint 03: Flickering

Index	Failure Condition	Section	Type	How	See
03-001	One or more Actions lead to flickering.	UA1:7.1-5	Page	H	–
03-002	One or more multimedia objects contain flickering content.	UA1:7.1-5	Object	H	–
03-003	One or more JavaScript actions lead to flickering.	UA1:7.1-5	JS	H	–

Checkpoint 04: Color and Contrast

Index	Failure Condition	Section	Type	How	See
04-001	Information is conveyed by contrast, color, format or layout, or some combination thereof but the content is not tagged to reflect all meaning conveyed by the use of contrast, color, format or layout, or some combination thereof.	UA1:7.1-6	Object	H	–

Checkpoint 05: Sound

Index	Failure Condition	Section	Type	How	See
05-001	Media annotation present, but audio content not available in another form. NOTE 1: An example of another form is a transcript.	UA1:7.1-7	Object	H	–
05-002	Audio annotation present, but content not available in another form. NOTE 2: An example of another form is a transcript.	UA1:7.1-7	Object	H	–
05-003	JavaScript uses beep function but does not provide another means of notification.	UA1:7.1-7	JS	H	–

Checkpoint 06: Metadata

Index	Failure Condition	Section	Type	How	See
06-001	Document does not contain an XMP metadata stream	UA1:7.1-8	Doc	M	–
06-002	The XMP metadata stream in the Catalog dictionary does not include the PDF/UA identifier.	UA1:5	Doc	M	–
06-003	XMP metadata stream does not contain **dc:title**	UA1:7.1-8	Doc	M	–
06-004	**dc:title** does not clearly identify the document	UA1:7.1-8	Doc	H	–

Checkpoint 07: Dictionary

Index	Failure Condition	Section	Type	How	See
07-001	ViewerPreferences dictionary of the Catalog dictionary does not contain a **DisplayDocTitle** entry.	UA1:7.1-9	Doc	M	–
07-002	ViewerPreferences dictionary of the Catalog dictionary contains a **DisplayDocTitle** entry with a value of false.	UA1:7.1-9	Doc	M	–

Checkpoint 08: OCR Validation

Index	Failure Condition	Section	Type	How	See
08-001	OCR-generated text contains significant errors.	UA1:7.1-10	Page	H	–
08-002	OCR-generated text is not tagged	UA1:7.1-10	Page	H	01-006

Checkpoint 09: Appropriate Tags

Index	Failure Condition	Section	Type	How	See
09-001	Tags are not in logical reading order.	UA1:7.2-1	Doc	H	–
09-002	Structure elements are nested in a semantically inappropriate manner. (e.g., a table inside a heading).	UA1:7.2-1	Object	H	–
09-003	The structure type (after applying any role-mapping as necessary) of a structure element is not *semantically* appropriate.	UA1:7.2-1	Object	H	01-006
09-004	A table-related structure element is used in a way that does not conform to the syntax defined in ISO 32000-1, Table 337.	UA1:7.2-1	Object	M	–
09-005	A list-related structure element is used in a way that does not conform to Table 336 in ISO 32000-1.	UA1:7.2-1	Object	M	–
09-006	A TOC-related structure element is used in a way that does not conform to Table 333 in ISO 32000-1.	UA1:7.2-1	Object	M	–
09-007	A Ruby-related structure element is used in a way that does not conform to Table 338 in ISO 32000-1.	UA1:7.2-1	Object	M	–
09-008	A Warichu-related structure element is used in a way that does not conform to Table 338 in ISO 32000-1.	UA1:7.2-1	Object	M	–

Checkpoint 10: Character Mappings

Index	Failure Condition	Section	Type	How	See
10-001	Character code cannot be mapped to Unicode.	UA1:7.2-2	Object	M	–

NOTE: Unicode mapping requirements are specified in ISO 32000-1:2008, 14.8.2.4 “Extraction of character properties”.

Checkpoint 11: Declared Natural Language

Index	Failure Condition	Section	Type	How	See
11-001	Natural language for text in page content cannot be determined.	UA1:7.2-3	Object	M	–
11-002	Natural language for text in **Alt**, **ActualText** and **E** attributes cannot be determined.	UA1:7.2-3	Object	M	–
11-003	Natural language in the **Outline** entries cannot be determined.	UA1:7.2-3	Object	M	–
11-004	Natural language in the **Contents** entry for annotations cannot be determined.	UA1:7.2-3	Object	M	–
11-005	Natural language in the **TU** entry for form fields cannot be determined.	UA1:7.2-3	Object	M	–
11-006	Natural language for document metadata cannot be determined.	UA1:7.2-3	Doc	M	–
11-007	Natural language is not appropriate.	UA1:7.2-3	All	H	–

Checkpoint 12: Stretchable Characters

Index	Failure Condition	Section	Type	How	See
12-001	Stretched characters are not represented appropriately.	UA1:7.2-4	Object	H	–

Checkpoint 13: Graphics

Index	Failure Condition	Section	Type	How	See
13-001	Graphics objects other than text objects and artifacts are not tagged with a <Figure> tag.	UA1:7.3-1	Object	H	–
13-002	A link with a meaningful background does not include alternative text describing both the link and the graphic's purpose.	UA1:7.3-1	Object	H	–
13-003	A caption is not tagged with a <Caption> tag.	UA1:7.3-2	Object	H	–
13-004	<Figure> tag alternative or replacement text missing.	UA1:7.3-3	Object	M	–
13-005	**ActualText** used for a <Figure> for which alternative text is more appropriate.	UA1:7.3-4	Object	H	–
13-006	Graphics objects that possess semantic value only within a group of graphics objects is tagged on its own.	UA1:7.3-5	Object	H	–
13-007	A more accessible representation is not used.	UA1:7.3-6	Object	H	–
13-008	**ActualText** not present when a <Figure> is intended to be consumed primarily as text.	UA1:7.3-4	Object	H	–

Checkpoint 14: Headings

Index	Failure Condition	Section	Type	How	See
14-001	Headings are not tagged.	UA1:7.4-1	Doc	H	01-006
14-002	Does use numbered headings, but the first heading tag is not <H1>.	UA1:7.4.2-1	Doc	M	–
14-003	Numbered heading levels in descending sequence are skipped (Example: <H3> follows directly after <H1>).	UA1:7.4-1	Doc	M	–
14-004	Numbered heading tags do not use Arabic numerals and are not role mapped to heading types that do use Arabic numerals. NOTE 1: A human is required to validate that the custom structure element is intended to be a heading element. Note 2: The rule requiring Arabic numerals for headings applies to the heading subtype for the structure element or, if role mapped, to its eventual heading target.	UA1:7.4.3-1	Object	H	01-006
14-005	Content representing a 7th level (or higher) heading does not use an <H7> (or higher) tag.	UA1:7.4.3-1	Object	H	01-006
14-006	A node contains more than one <H> tag.	UA1:7.4.4-1	Object	M	–
14-007	Document uses both <H> and <H#> tags. NOTE 3: In weakly-structured documents, headings always take the form <Hn> (e.g., <H1>, <H2>, <Hn>) without intervening whitespace or numerical separators.	UA1:7.4.4-3	Doc	M	–

Checkpoint 15: Tables

Index	Failure Condition	Section	Type	How	See
15-001	A row has a header cell, but that header cell is not tagged as a header.	UA1:7.5-1	Object	H	–
15-002	A column has a header cell, but that header cell is not tagged as a header.	UA1:7.5-1	Object	H	–
15-003	In a table not organized with **Headers** attributes and **ID**s, a <TH> cell does not contain a **Scope** attribute.	UA1:7.5-2	Object	M	–
15-004	Content is tagged as a table for information that is not organized in rows and columns.	UA1:7.5-3	Object	H	–
15-005	A given cell's header cannot be unambiguously determined.	UA1:7.5-2	Object	H	01-006

Checkpoint 16: Lists

Index	Failure Condition	Section	Type	How	See
16-001	List is an ordered list, but no value for the **ListNumbering** attribute is present.	UA1:7.6-1	Object	H	–
16-002	List is an ordered list, but the **ListNumbering** value is not one of the following: Decimal, UpperRoman, LowerRoman, UpperAlpha, LowerAlpha.	UA1:7.6-1	Object	H	–
16-003	Content is a list but is not tagged as a list.	UA1:7.6-2	Object	H	01-006

Checkpoint 17: Mathematical Expressions

Index	Failure Condition	Section	Type	How	See
17-001	Content is a mathematical expression but is not tagged with a <Formula> tag.	UA1:7.7-1	Object	H	01-006
17-002	<Formula> tag is missing an **Alt** attribute.	UA1:7.7-1	Object	M	–
17-003	Unicode mapping requirements are not met.	UA1:7.7-2	Object	M	10-001

Checkpoint 18: Page Headers and Footers

Index	Failure Condition	Section	Type	How	See
18-001	Headers and footers are not marked as pagination artifacts.	UA1:7.8-1	Object	H	–
18-002	Header or footer artifacts are not classified as Header or Footer subtypes.	UA1:7.8-1	Object	H	–

Checkpoint 19: Notes and References

Index	Failure Condition	Section	Type	How	See
19-001	Footnotes or endnotes are not tagged as <Note>.	UA1:7.9-1	Object	H	–
19-002	References are not tagged as <Reference>.	UA1:7.9-1	Object	H	–
19-003	**ID** entry of the <Note> tag is not present.	UA1:7.9-2	Object	M	–
19-004	**ID** entry of the <Note> tag is non-unique.	UA1:7.9-2	Object	M	–

Checkpoint 20: Optional Content

Index	Failure Condition	Section	Type	How	See
20-001	**Name** entry is missing or has an empty string as its value in an Optional Content Configuration Dictionary in the **Configs** entry in the **OCProperties** entry in the Catalog dictionary.	UA1:7.10-1	Object	M	–
20-002	**Name** entry is missing or has an empty string as its value in an Optional Content Configuration Dictionary that is the value of the **D** entry in the **OCProperties** entry in the Catalog dictionary.	UA1:7.10-1	Object	M	–
20-003	An **AS** entry appears in an Optional Content Configuration Dictionary.	UA1:7.10-2	Object	M	–

Checkpoint 21: Embedded Files

Index	Failure Condition	Section	Type	How	See
21-001	The file specification dictionary for an embedded file does not contain **F** and **UF** entries.	UA1:7.11-1	Object	M	–

Checkpoint 22: Article Threads

Index	Failure Condition	Section	Type	How	See
22-001	Article threads do not reflect logical reading order.	UA1:7.12-1	Object	H	–

Checkpoint 23: Digital Signatures

Index	Failure Condition	Section	Type	How	See
23-001	No test specific to digital signatures is required, however other provisions apply (form fields).	UA1:7.13-1	--	--	01-006

Checkpoint 24: Non-Interactive Forms

Index	Failure Condition	Section	Type	How	See
24-001	Non-interactive forms are not tagged with the **PrintFields** attribute.	UA1:7.14-1	Object	H	–

Checkpoint 25: XFA

Index	Failure Condition	Section	Type	How	See
25-001	File contains the dynamicRender element with value “required”.	UA1:7.15-1	Object	M	–

Checkpoint 26: Security

Index	Failure Condition	Section	Type	How	See
26-001	The file is encrypted but does not contain a **P** entry in its encryption dictionary.	UA1:7.16-1	Object	M	–
26-002	The file is encrypted and does contain a **P** entry but the 10th bit position of the **P** entry is false.	UA1:7.16-1	Object	M	–

Checkpoint 27: Navigation

Index	Failure Condition	Section	Type	How	See
27-001	No tests specific to navigation are required; use appropriate semantics.	UA1:7.17-1	--	--	01-006

Checkpoint 28: Annotations

Clause 7.18 in PDF/UA-1 (14289-1) is not applicable to annotations whose hidden flag is set or whose rectangle is outside the CropBox or whose Subtype is Popup. In all these cases, the rules of checkpoint 28 do not apply.

Index	Failure Condition	Section	Type	How	See
28-001	An annotation is not in correct reading order.	UA1:7.18.1-2	Object	H	–
28-002	An annotation, other than of subtype Widget, Link and PrinterMark, is not a direct child of an <Annot> structure element.	UA1:7.18.1-2	Object	M	28-010, 28-011, 28-017, 28-018
28-003	An annotation is used for visual formatting but is not tagged according to its semantic function.	UA1:7.18.1-3	Object	H	–
28-004	An annotation, other than of subtype Widget, does not have a **Contents** entry and does not have an alternative description (in the form of an **Alt** entry in the enclosing structure element).	UA1:7.18.1-4	Object	M	–
28-005	A form field does not have a **TU** entry and does not have an alternative description (in the form of an **Alt** entry in the enclosing structure element).	UA1:7.18.1-4	Object	M	–
28-006	An annotation with subtype undefined in ISO 32000 does not meet 7.18.1.	UA1:7.18.2-1	Object	M	28-001, 28-002, 28-003, 28-004
28-007	An annotation of subtype TrapNet exists.	UA1:7.18.2-2	Object	M	–
28-008	A page containing an annotation does not contain a **Tabs** entry.	UA1:7.18.3-1	Object	M	–
28-009	A page containing an annotation has a **Tabs** entry with a value other than S.	UA1:7.18.3-1	Object	M	–
28-010	A widget annotation is not nested within a <Form> tag.	UA1:7.18.4-1	Object	M	–
28-011	A link annotation is not nested within a <Link> tag.	UA1:7.18.5-1	Object	M	–
28-012	A link annotation does not include an alternate description in its **Contents** entry.	UA1:7.18.5-2	Object	M	–
28-013	An **IsMap** entry is present with a value of true but the functionality is not provided in some other way.	UA1:7.18.5-3	Object	H	–

Index	Failure Condition	Section	Type	How	See
28-014	**CT** entry is missing from the media clip data dictionary.	UA1:7.18.6.2-1	Object	M	–
28-015	**Alt** entry is missing from the media clip data dictionary.	UA1:7.18.6.2-1	Object	M	–
28-016	File attachment annotations do not conform to 7.11.	UA1:7.18.7-1	Object	M	20-001
28-017	A PrinterMark annotation is included in the logical structure.	UA1:7.18.8-1	Object	M	–
28-018	The appearance stream of a PrinterMark annotation is not marked as Artifact.	UA1:7.18.8-2	Object	M	01-002, 01-005

Checkpoint 29: Actions

Index	Failure Condition	Section	Type	How	See
29-001	A script requires specific timing for individual keystrokes.	UA1:7.19-1	Object	H	–

Checkpoint 30: XObjects

Index	Failure Condition	Section	Type	How	See
30-001	A reference XObject is present.	UA1:7.20-1	Object	M	–
30-002	Form XObject contains MCIDs and is referenced more than once.	UA1:7.20-2	Object	M	–

Checkpoint 31: Fonts

Index	Failure Condition	Section	Type	How	See
31-001	A Type 0 font dictionary with encoding other than Identity-H and Identity-V has values for Registry in both **CIDSystemInfo** dictionaries that are not identical.	UA1:7.21.3-1	Object	M	–
31-002	A Type 0 font dictionary with encoding other than Identity-H and Identity-V has values for Ordering in both **CIDSystemInfo** dictionaries that are not identical.	UA1:7.21.3.1-1	Object	M	–

Index	Failure Condition	Section	Type	How	See
31-003	A Type 0 font dictionary with encoding other than Identity-H and Identity-V has a value for Supplement in the **CIDSystemInfo** dictionary of the CID font that is less than the value for Supplement in the **CIDSystemInfo** dictionary of the CMap.	UA1:7.21.3.1-1	Object	M	–
31-004	A Type 2 CID font contains neither a stream nor the name *Identity* as the value of the **CIDToGIDMap** entry.	UA1:7.21.3.2-1	Object	M	–
31-005	A Type 2 CID font does not contain a **CIDToGIDMap** entry.	UA1:7.21.3.2-1	Object	M	–
31-006	A CMap is neither listed as described in ISO 32000-1:2008, 9.7.5.2, Table 118 nor is it embedded.	UA1:7.21.3.3-1	Object	M	–
31-007	The **WMode** entry in a CMap dictionary is not identical to the **WMode** value in the CMap stream.	UA1:7.21.3.3-1	Object	M	–
31-008	A CMap references another CMap which is not listed in ISO 32000-1:2008, 9.7.5.2, Table 118. NOTE 1: For more information see ISO 32000-1 9.7.5.3, UseCMap entry.	UA1:7.21.3.3-2	Object	M	–
31-009	For a font used by text intended to be rendered the font program is not embedded. NOTE 2: A glyph is used for rendering if the text render mode is not 3 (text render mode 3 is used for invisible text).	UA1:7.21.4.1-1	Object	M	–
31-010	A font program is embedded that is not legally embeddable for unlimited, universal rendering. NOTE 3: Although machines may detect relevant flags, this may not correspond to actual legal circumstances.	UA1:7.21.4.1-2	Object	H	–
31-011	For a font used by text the font program is embedded but it does not contain glyphs for all of the glyphs referenced by the text used for rendering. NOTE 4: A glyph is used for rendering if the text render mode is not 3 (text render mode 3 is used for invisible text).	UA1:7.21.4.1-3	Object	M	–

Index	Failure Condition	Section	Type	How	See
31-012	The **FontDescriptor** dictionary of an embedded Type 1 font contains a **CharSet** string, but at least one of the glyphs present in the font program is not listed in the **CharSet** string.	UA1:7.21.4.2-1	Object	M	–
31-013	The **FontDescriptor** dictionary of an embedded Type 1 font contains a **CharSet** string, but at least one of the glyphs listed in the **CharSet** string is not present in the font program.	UA1:7.21.4.2-2	Object	M	–
31-014	The **FontDescriptor** dictionary of an embedded **CID** font contains a **CIDSet** string, but at least one of the glyphs present in the font program is not listed in the **CIDSet** string.	UA1:7.21.4.2-3	Object	M	–
31-015	The **FontDescriptor** dictionary of an embedded **CID** font contains a **CIDSet** string, but at least one of the glyphs listed in the **CIDSet** string is not present in the font program.	UA1:7.21.4.2-4	Object	M	–
31-016	For one or more glyphs, the glyph width information in the font dictionary and in the embedded font program differ by more than 1/1000 unit.	UA1:7.21.5-1	Object	M	–
31-017	A non-symbolic TrueType font is used for rendering, but none of the **cmap** entries in the embedded font program is a non-symbolic **cmap**.	UA1:7.21.6-1	Object	M	–
31-018	A non-symbolic TrueType font is used for rendering, but for at least one glyph to be rendered the glyph cannot be looked up by any of the non-symbolic **cmap** entries in the embedded font program.	UA1:7.21.6-2	Object	M	–
31-019	The font dictionary for a non-symbolic TrueType font does not contain an **Encoding** entry.	UA1:7.21.6-3	Object	M	–
31-020	The font dictionary for a non-symbolic TrueType font contains an **Encoding** dictionary which does not contain a **BaseEncoding** entry.	UA1:7.21.6-4	Object	M	–
31-021	The value for either the **Encoding** entry or the **BaseEncoding** entry in the Encoding dictionary in a non-symbolic TrueType font dictionary is neither *MacRomanEncoding* nor *WinAnsiEncoding*.	UA1:7.21.6-5	Object	M	–

Index	Failure Condition	Section	Type	How	See
31-022	The **Differences** array in the **Encoding** entry in a non-symbolic TrueType font dictionary contains one or more glyph names which are not listed in the Adobe Glyph List.	UA1:7.21.6-6	Object	M	–
31-023	The **Differences** array is present in the **Encoding** entry in a non-symbolic TrueType font dictionary but the embedded font program does not contain a (3,1) Microsoft Unicode **cmap**.	UA1:7.21.6-7	Object	M	–
31-024	The **Encoding** entry is present in the font dictionary for a symbolic TrueType font.	UA1:7.21.6-8	Object	M	–
31-025	The embedded font program for a symbolic TrueType font contains no **cmap**.	UA1:7.21.6-9	Object	M	–
31-026	The embedded font program for a symbolic TrueType font contains more than one **cmap**, but none of the **cmap** entries is a (3,0) Microsoft Symbol **cmap**.	UA1:7.21.6-10	Object	M	–
31-027	A font dictionary does not contain the **ToUnicode** entry and none of the following is true: ■ the font uses **MacRomanEncoding**, **MacExpertEncoding** or **WinAnsiEncoding** ■ the font is a Type 1 or Type 3 font and the glyph names of the glyphs referenced are all contained in the Adobe Glyph List or the set of named characters in the Symbol font, as defined in ISO 32000-1:2008, Annex D ■ the font is a Type 0 font, and its descendant **CIDFont** uses **Adobe-GB1**, **Adobe-CNS1**, **Adobe-Japan1** or **Adobe-Korea1** character collections ■ the font is a non-symbolic TrueType font	UA1:7.21.7-1	Object	M	–
31-028	One or more Unicode values specified in the **ToUnicode CMap** are zero (0).	UA1:7.21.7-2	Object	M	–
31-029	One or more Unicode values specified in the **ToUnicode CMap** are equal to either U+FEFF or U+FFFE.	UA1:7.21.7-3	Object	M	–
31-030	One or more characters used in text showing operators reference the .notdef glyph.	UA1:7.21.8-1	Object	M	–

