Arlington PDF Model

git clone https://github.com/pdf-association/arlington-pdf-model

TSV data model (12 fields)

#	Field Name	Blank?	Complex?	Description
1	Key	No	No	• Dictionary key name (without `/`) or single-digit 0-based integer array index. • Repeating sets of array entries are single-digit 0-based integers followed by ASTERISK (`*`) that must occur after all non-repeating rows: `2*`, `3*`, … • Wildcard is ASTERISK (`*`) and matches anything – always last row in TSV.
	Complex Type: `array;integer` → `[arr];[int]`			
2	Type	No	Yes	• Alphabetically sorted list of Arlington types. • SEMI-COLON ';' separated. • Version-based predicates. e.g. `fn:SinceVersion(1.6,stream)` or `fn:Deprecated(2.0,array)`
3	SinceVersion	No	No	• `1.0`,`1.1`,`1.2`,`1.3`,`1.4`,`1.5`,`1.6`,`1.7`, or `2.0`. • `fn:Extension` predicate. e.g. `fn:Extension(ADBE_Extn3,1.7)` predicate, `fn:Eval((fn:Extension(ISO_19005_3,1.7) || 2.0))`
4	DeprecatedIn	Yes	No	• `1.0`,`1.1`,`1.2`,`1.3`,`1.4`,`1.5`,`1.6`,`1.7`,`2.0` or blank
5	Required	No	No	• `TRUE`, `FALSE`, or `fn:IsRequired(…)` predicate. e.g. `fn:IsRequired(fn:IsPresent(State))`,`fn:IsRequired(@O==NSO)`
6	IndirectReference	No	Yes	• Either `TRUE` or `FALSE` or complex set `[FALSE];[TRUE];[FALSE]` • `fn:MustBeDirect(…)` or `fn:MustBeIndirect(…)` predicate. e.g. `fn:MustBeDirect(fn:IsPresent(Encrypt))`
7	Inheritable	No	No	• Always `TRUE` or `FALSE`.
8	DefaultValue	Yes	Yes	• A value or expression appropriate to `Type`, or value of another key (`@key`), or a predicate-based expression.
9	PossibleValues	Yes	Yes	• Optional sets of one or more values or an expression appropriate to `Type` • Can be a predicate-based expression. e.g. `[fn:Eval(@Count>0)]`
10	SpecialCase	Yes	Yes	• Optional data integrity rules defined by predicates (predicate expressions).
11	Link	Yes	Yes	• Required link(s) to other TSV files for types: `array`,`dictionary`,`name-tree`, `number-tree`, or `stream`. Case-sensitive file name (without `.tsv` extension). • Must be empty (`[];[…]`) or not present for all other types.
12	Note	Yes	No	• Optional free text. May include references to ISO 32000-2:2020 and GitHub errata.

Predicate Grammar syntax

Definition		Notes / Examples
"Value of" key/element	`@key`	`trailer::Catalog::Threads`
PDF path separator	`::`	`parent::@BaseFont` `StdCF::@AuthEvent`
Special objects	`trailer`,`parent`	`ID::0`
Bracketing	`( )`	Explicit bracketing is always required
Logical	`&& ||`	See also `fn:Not(…)` predicate. Whitespace must be used.
Mathematical	`+ - * / mod`	Whitespace must be used.
Comparison	`== != > < <= >=`	No whitespace allowed
PDF strings	`'…'`	Single quoted (quotes not included). Empty string is thus `''`.
PDF arrays	`[ … … ]`	Whitespace separate array elements. Empty PDF array is `[]`.
PDF Boolean values	`true` or `false`	PDF keywords are lowercase.

Arlington data types

Basic types	`bitmask, boolean, date, integer, matrix, name, null, number, rectangle, string, string-ascii, string-byte, string-text`
Linked types	`array, dictionary, name-tree, number-tree, stream`

Arlington Predicates

Version-based predicates

`fn:BeforeVersion(vers)`	`fn:IsPDFVersion(vers)`
`fn:BeforeVersion(vers,stmnt)`	`fn:IsPDFVersion(vers,stmnt)`
`fn:SinceVersion(vers)`	`fn:Deprecated(vers,stmnt)`
`fn:SinceVersion(vers,stmnt)`	

Bitmask predicates

`fn:BitClear(bit)`	`fn:BitsClear(low-bit,high-bit)`
`fn:BitSet(bit)`	`fn:BitsSet(low-bit,high-bit)`

Other predicates

`fn:AlwaysUnencrypted()`	`fn:IsLastInNumberFormatArray(key)`
`fn:ArrayLength(key)`	`fn:IsMeaningful(cond)`
`fn:ArraySortAscending(key,step-int)`	`fn:IsPDFTagged()`
`fn:Extension(name)` or `fn:Extension(name,version)`	`fn:IsPresent(key)` or `fn:IsPresent(expr)` or `fn:IsPresent(key,cond)`
`fn:DefaultValue(cond,value)`	`fn:IsRequired(cond)`
`fn:Eval(expr)`	`fn:KeyNameIsColorant()`
`fn:Contains(@key,value)`	`fn:MustBeDirect()` or `fn:MustBeDirect(cond)`
`fn:FileSize()`	`fn:MustBeIndirect()`
`fn:FontHasLatinChars()`	`fn:MustBeIndirect(cond)`
`fn:HasProcessColorants(array)`	`fn:NoCycle()`
`fn:HasSpotColorants(array)`	`fn:Not(expr)`
`fn:Ignore()` or `fn:Ignore(cond)`	`fn:NotStandard14Font()`
`fn:ImageIsStructContentItem()`	`fn:NumberOfPages()`
`fn:ImplementationDependent()`	`fn:PageContainsStructContentItems()`
`fn:InKeyMap(key)`	`fn:PageProperty(page-ref,key)`
`fn:InNameTree(key)`	`fn:RectHeight(key)`
`fn:IsAssociatedFile()`	`fn:RectWidth(key)`
`fn:IsEncryptedWrapper()`	`fn:RequiredValue(cond,value)`
`fn:IsFieldName(value)`	`fn:StringLength(key)`
`fn:IsHexString()`	

Example predicates

```
fn:Eval(fn:ArrayLength(FDecodeParms)==fn:ArrayLength(FFilter))]
fn:Eval(((@Di==None) && (@S==Fly) && fn:SinceVersion(1.5,(@SS!=1.0))))
```

PDF association