

DTD syntax chart –

!DOCTYPE statements appear in the xml document to reference the corresponding dtd file. This statement mentions the xml root tag and, of course, the associated dtd.

```
<!DOCTYPE root_tag SYSTEM "pathname.dtd">
```

All the syntax listed below appears in the !DOCTYPE-referenced dtd file:

!ELEMENT statements appear in the dtd to describe the syntax of an element.

!ATTLIST statements appear in the dtd to describe the syntax of an attribute. Attributes are used for metadata, attached to opening element as name/value pairs.

An element can either contain a sequence of one or more inner tags, shown in brackets, with separating commas, or else leaf data, #PCDATA, if the tag has no inner tags.

In regard to sequences of tags nested within tags:

- * means 0 or more,
- + means 1 or more
- ? means 0 or 1
- | means not a sequence of tags, but rather an *either/or* situation.

Data is described using #PCDATA (*any* printable characters)

Metadata is described using CDATA (*any* printable characters)

(Aside: The reason why the same term isn't used for both isn't clear since #PCDATA and #CDATA effectively mean the same thing! They're just used in different contexts.)

In a !ATTLIST statement, #IMPLIED means that the relevant meta information may be deliberately missing in any particular occurrence of a tag. In other words the meta information is optional.

In an !ATTLIST statement, #REQUIRED means that the relevant meta information must be present in a particular occurrence of a tag. In other words the meta information is compulsory.

In an !ATTLIST statement, ID means that no two occurrences of the same tag can have the same value of the relevant attribute, in other words the attribute is a true uniquely identifying number. In this case, we'll also have #REQUIRED.

Examples:

```
<!ELEMENT note (to,from,heading,body)>
```

```
<!ELEMENT to (#PCDATA)>
```

```
<!ELEMENT from (#PCDATA)>
```

```
<!ELEMENT heading (#PCDATA)>
```

```
<!ELEMENT body (#PCDATA)>
```

```
<!ATTLIST note
```

```
    note_id ID #REQUIRED>
```