

The APT Reader module allows FME to read APT files.

## Overview

The APT is a published ASCII format used in design systems. It is a three-dimensional (3D) system.

APT files store both feature geometry and attribution, and have an `.apt` file name extension. The extension is added to the basename of the APT file.

The APT reader supports the storage of point, line, and polygon geometric data in `.apt` files. The APT format also stores features with no geometry (which are referred to as having a geometry of *none*).

## APT Quick Facts

Format Type Identifier	APT
Reader/Writer	Reader
Licensing Level	Professional
Dependencies	None
Dataset Type	File base name
Feature Type	Feature Name
Typical File Extensions	<code>.apt</code>
Automated Translation Support	Yes
User-Defined Attributes	No
Coordinate System Support	No
Generic Color Support	No
Spatial Index	Never
Schema Required	Not applicable
Transaction Support	No
Geometry Type Attribute	<code>apt_type</code>

Geometry Support			
Geometry	Supported?	Geometry	Supported?
aggregate	no	point	yes
circles	no	polygon	no
circular arc	no	raster	no
donut polygon	no	solid	no
elliptical arc	no	surface	no
ellipses	no	text	no

Geometry Support			
Geometry	Supported?	Geometry	Supported?
line	no	z values	yes
none	yes		

## Reader Overview

The APT reader then extracts features from a file one at a time, and passes them on to the rest of the FME for further processing. The reader finishes when it reaches the end of the file.

## Reader Keywords

The following paragraphs list the keywords processed by the APT reader. The suffixes shown are prefixed by the current `<ReaderKeyword>` in a mapping file. By default, the `<ReaderKeyword>` for the APT reader is `APT`.

### DATASET

**Required/Optional:** *Required*

Contains the directory name of the input APT files. The value for this keyword is the file path of the APT file to be read. A typical mapping file fragment specifying an input APT dataset looks like:

```
APT_DATASET /usr/data/apt/aptfile.apr
```

### DEF

**Required/Optional:** *Optional*

This keyword defines the APT file, and each APT file must be defined before it can be read. The definition specifies the base name of the file, and the names and the types of all attributes. The syntax of a `APT DEF` line is:

```
<ReaderKeyword>_DEF <baseName> \
    [<attrName> <attrType>]+
```

The basename specified on the `APT DEF` lines is constructed by using either the file name without the extension specified by the `DATASET` keyword, or using `apt_record` (used only when `APT` is the source).

APT files require at least one attribute to be defined. The attribute definition given must match the definition of the file being read. If it does not, translation is halted and the true definition of the APT file's attributes gets logged to the log file.

The following table shows the attribute types supported.

Field Type	Description
<code>char(&lt;width&gt;)</code>	Character fields store fixed-length strings. The <code>width</code> parameter controls the maximum number of characters that can be stored by the field. No padding is required for strings shorter than this width.
<code>date</code>	Date fields store dates as character strings with the format <code>YYYYMMDD</code> .
<code>number(&lt;width&gt;, &lt;decimals&gt;)</code>	Number fields store single and double precision floating point values. The <code>width</code> parameter is the total number of characters allocated to the field, including the decimal point. The <code>decimals</code> parameter controls the precision of the data and is the number of digits to the right of the decimal.
<code>logical</code>	Logical fields store <code>TRUE/FALSE</code> data. Data read or written from and to such fields must always have a value of either <code>true</code> or <code>false</code> .

The following mapping file fragment defines a APT file `DEF` line when APT is the source file format.

```
APT_DEF apt_record \
  apt_ival char(254) \
  apt_jval char(254) \
  apt_kval char(254)
```

## Feature Representation

In addition to the generic FME feature attributes that FME Workbench adds to all features (see *About Feature Attributes* on page 7), this format adds the format-specific attributes described in this section.

APT features consist of geometry and attributes. The attribute names are defined in the `DEF` line and there is a value for each attribute in each APT feature.

The table below lists the attributes contained in all APT features.

Attribute Name	Contents
<code>apt_type</code>	The APT geometric type of this entity. <b>Range:</b> <code>apt_point apt_none</code> <b>Default:</b> No default
<code>apt_ival</code>	This is the <code>i</code> coordinate to the point that is in normal vector. <b>Range:</b> Floating Point Number <b>Default:</b> Blank

Attribute Name	Contents
apt_jval	This is the <i>j</i> coordinate to the point that is in normal vector. <b>Range:</b> Floating Point Number <b>Default:</b> Blank
apt_kval	This is the <i>k</i> coordinate to the point that is in normal vector. <b>Range:</b> Floating Point Number <b>Default:</b> Blank

## Points

apt\_type: apt\_point

APT point features specify a single *x* and *y* coordinate in addition to any associated user-defined attributes. There are no special FME attributes for the APT point type. Currently only point features are supported.