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# **TSDuck Foo Extension**

## **User's Guide**

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# 1 The “Foo” Extension to TSDuck

## 1.1 Purpose

The sample Foo extension to TSDuck is a code template for other more useful extensions.

## 1.2 Overview

The Foo extension can be found in the subdirectory `sample/sample-extension` of the TSDuck source tree. Templates are available for all possibilities of TSDuck extensions:

- Handling of a third-party table named "Foo Table" or FOOT. The table can be manipulated in XML, analyzed and displayed with the standard TSDuck tools.
- Handling of a third-party descriptor named *foo\_descriptor*. The descriptor can be manipulated in XML, analyzed and displayed with the standard TSDuck tools.
- Handling a third-party Conditional Access System named "Foo CAS". The ECM's, EMM's and private parts of the CA\_descriptor are correctly analyzed and displayed with the standard TSDuck tools.
- Some additional plugins for *tsp*. In this extension, there is one which manipulates the Foo Table on the fly.
- Some additional utilities. Here, there is one which does not do much (just to illustrate how to do that).
- Provide scripts to build standard installers (`.exe` on Windows, `.rpm` and `.deb` on Linux). The installers install the extension on top of a matching version of TSDuck.
- Documentation template (this document).



## 2 Command-Line Utilities

This chapter contains the reference documentation of all command-line utilities which are defined by the sample “Foo” extension to TSDuck.

All conventions from TSDuck command-line utilities equally apply to extension: integer format, predefined common options, partial command line redirection, etc.

**Table 1: Command-line utilities**

Utility	Description
footool	Sample useless utility which can be used as source code template.



## ■ ■ footool

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### Sample useless utility

This utility is mostly useless. Its source code and build environment can be used as templates for utilities in other extensions.

### Usage

```
footool [options] [input-file ...]
```

### Input files

A list of input files. If omitted, standard input is used.

### Options

**-a**

**--all**

Does not mean anything, this is just a sample option.

### Generic common command options

The following options are implicitly defined in all commands.

**--debug[=*N*]**

Produce verbose debug output. Specify an optional debug level *N* (1 by default).

**--help**

Display command help text.

**--verbose**

Produce verbose messages.

**--version**

Display the version number.



### 3 TSP Plugins

This chapter contains the reference documentation of all plugins for *tsp* which are defined by the sample “Foo” extension to TSDuck.

**Table 2: *tsp* plugins**

Plugin	Type	Description
foot	packet	Perform various transformations on the FOOT (Foo Table)



## Perform various transformations on a FOOT

This plugin performs various transformations on a FOOT (Foo Table).

### Usage

```
tsp -P foot [options]
```

### Options

**--bitrate** *value*

Specifies the bitrate in bits / second of the PID containing the FOOT if a new one is created.  
The default is 3,000 b/s.

**-c**

**--create**

Create a new empty FOOT if none was received after one second.  
This is equivalent to **--create-after 1000**.

**--create-after** *milliseconds*

Create a new empty FOOT if none was received after the specified number of milliseconds. If an actual FOOT is received later, it will be used as the base for transformations instead of the empty one.

**-i** *value*

**--id** *value*

Modify the *foo\_id* field in the FOOT with the specified value.

**--increment-version**

Increment the version number of the FOOT.

**--inter-packet** *value*

When a new FOOT is created and **--bitrate** is not present, this option specifies the packet interval for the FOOT PID, that is to say the number of TS packets in the transport between two packets of the PID.

Use instead of **--bitrate** if the global bitrate of the TS cannot be determined.

**-n** *value*

**--name** *value*

Modify the *name* field in the FOOT with the specified value.

**-v** *value*

**--new-version** *value*

Specify a new value for the version of the FOOT.

**-p** *value*

**--pid** *value*

Specify the PID on which the FOOT is expected. This option is required.

### Generic packet processing plugin options

The following options are implicitly defined in all packet processing plugins.

**--help**

Display this help text.

**--only-label** *label1*[-*label2*]

Invoke this plugin only for packets with any of the specified labels. Other packets are transparently passed to the next plugin, without going through this one.

Several **--only-label** options may be specified.





## Appendix A PSI/SI XML Reference Model

This appendix describes the XML reference format for all tables and descriptors which are defined by the sample “Foo” extension to TSDuck. These definitions are added to the main PSI/SI XML reference model of TSDuck.

### A.1 Tables

#### A.1.1 Foo Table (FOOT)

```
<FOOT version="uint5, default=0"
      current="bool, default=true"
      foo_id="uint16, required"
      name="string, optional">
  <DESCRIPTOR_LIST>
</FOOT>
```

### A.2 Descriptors

#### A.2.1 foo\_descriptor

```
<foo_descriptor name="string, required"/>
```