W3A/F – WWW Applets/Filters API

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W3A/F: Filters

Filters add the capability to handle a new format, by translating it to another, already known format. The browser may even try to daisy chain filters, to arrive at a format it knows. Their signature consists of:

1. One or more pairs of (MIME-like) types.
2. The object file(s) to load.
3. A suffix to add to function names.

> **Question:** *Do we need a 'degradation factor' to describe to the browser how much information will (typically) be lost in the conversion?*

A filter must export the following functions:

- `Bool initXXX(char ***from, char ***to, int *nrfromto, float **qual)`

  Initialized private variables and returns the list of transformations that the filter can do. Each string in `from` and `to` is a MIME type. The `qual` array must be exactly as long as the `from` array and contain numbers between 0.0 and 1.0. When the function returns `FALSE`, the *errno* **variable** holds the reason.

- `Bool openXXX(const char *from_type, const char *from_params, const char *to_type, const char *to_params, long id)`

  The types are things like `"text/plain"`, `"image/gif"`. Returns `FALSE` in case of an error. See `errno` for error codes.

- `int readXXX(long id, char *buf, size_t bufsiz)`

  Returns number of (converted) characters read. -1 with an `errno` of `EAGAIN` means that no converted characters are available yet and a call to `writeXXX` is required first. A return value of 0 indicates the end of the data.

- `int writeXXX(long id, const char *buf, size_t nchars)`

  Returns number of characters actually written. A return of -1 indicates an error, 0 indicates that a call to `readXXX` is required first. To indicate to the filter that the end of the data is reached, call `writeXXX` with *`nchars=0`*.

- `Bool closeXXX(long id)`

  Should be called after the last `readXXX` returns 0. (For error codes, see `errno`)

The browser must call these routines subject to the same constraints m.m. as for the agents.