

## Filters

Filters can drop, transform or aggregate log events and hook into the processing chain.

There are two types of filters: - Input filters - process raw input from input plugins before log events get parsed - Output filters - process parsed log events before they are passed to output plugins.

**Input Plugins -> Input Filters -> Parser -> Output Filter -> Output Plugins**

Example:

1. Input: Tail Web Server Log -g '/var/log/httpd/access.log'
2. Input-Filter: Grep URL's of interest 'login|register|upgrade'
3. Parser: Parse Log and generate fields like URL, status code, size, referer, country etc.
5. Output Filter: Drop non-relevant log events like redirects (status=302)
6. Output Plugin: Store filtered log events in Elasticsearch

Filters can be declared inline as JavaScript in function or as reference to a npm modules in Logagent config file.

## Input filter

Function parameters for input filters:

- sourceName - the name of the log source e.g. '/var/log/httpd/access.log'
- config - the configuration options from the config file
- data - the raw (input filter) or parsed data (output filter)
- callback - MUST be called.
- callback() without parameters drops the event.
- callback (null,data) will pass the log event to the next filter or output plugin.
- callback(error) will report an error and drops the event

Node.js modules can be loaded as filter function with the `module` keyword. A module can be declared inline as JavaScript function using `!!js/function >>` in the module property. Properties in the config section are passed to the filter function as "config" object.

Example, using npm modules:

```
inputFilter:
- module: logagent-filter-input-grep
  config:
    matchSource: !!js/regexp /myapp.log/
    include: !!js/regexp /info|error/i
    exclude: !!js/regexp /test/i
```

Example, inline JavaScript function:

```
inputFilter:
- module: logagent-filter-input-grep
  config:
    matchSource: !!js/regexp /myapp.log/
    include: !!js/regexp /info|error/i
    exclude: !!js/regexp /test/i
  module: !!js/function >>
    function (sourceName, config, data, callback) {
      try {
        var drop = false
        if (config.matchSource) {
          if (!config.matchSource.test(sourceName)) {
            // pass data for unmatched source names
            return callback(null, data)
          }
        }
        // filter data for matched source names
        if (config.include) {
          drop = !config.include.test(data)
        }
        if (config.exclude) {
          drop = config.exclude.test(data) || drop
        }
        drop ? callback() : callback(null, data)
      } catch (err) {
        return callback(null, data)
      }
    }
  }
```

## Output filter

Function parameters for output filters:

- context - an object providing information about the log source, e.g. context.source
- config - the configuration options from the config file
- eventEmitter - the eventEmitter send new events to logagent plugins emit('data.parsed', context, data). Required for aggregation plugins, which typically drop all events and generate new events with aggregated stats.
- data - the raw (input filter) or parsed data (output filter)
- callback - MUST be called.
- callback() without parameters drops the event.

- `callback (null,data)` will pass the log event to the next filter or output plugin.
- `callback(error)` will report an error and drops the event

Node.js modules can be loaded as filter function with the `module` keyword. A module can be declared inline as JavaScript function using `!!js/function >>` in the module property. Properties in the config section are passed to the filter function as “config” object.

Example, inline declaration to implement the grep filter from above applied to `data.message` field.

`outputFilter:`

```
- config:
  matchSource: !!js/regexp /myapp.log/
  include: !!js/regexp /info|error/i
  exclude: !!js/regexp /test/i
module: !!js/function >>
  function (context, config, eventEmitter, data, callback) {
    try {
      var sourceName = context.source
      var drop = false
      if (config.matchSource) {
        if (!config.matchSource.test(sourceName)) {
          // pass data for unmatched source names
          return callback(null, data)
        }
      }
      // filter data for matched source names
      if (config.include) {
        drop = !config.include.test(data.message)
      }
      if (config.exclude) {
        drop = config.exclude.test(data) || drop
      }
      drop ? callback() : callback(null, data)
    } catch (err) {
      // pass all events to next filter
      return callback(null, data)
    }
  }
}
```

## List of available filters

- Grep input filter - module alias “grep”
- SQL output filter - module alias “sql”

- Access Watch output filter - module alias “access-watch”