

## 3 Low-level discovery macros

### Overview

There is a type of macro used within the [low-level discovery](#) (LLD) function:

```
{#MACRO}
```

It is a macro that is used in an LLD rule and returns real values of file system names, network interfaces, SNMP OIDs, etc.

These macros can be used for creating item, trigger and graph *prototypes*. Then, when discovering real file systems, network interfaces etc., these macros are substituted with real values and are the basis for creating real items, triggers and graphs.

These macros are also used in creating host and host group *prototypes* in virtual machine [discovery](#).

Some low-level discovery macros come “pre-packaged” with the LLD function in Zabbix - `{#FSNAME}`, `{#FSTYPE}`, `{#IFNAME}`, `{#SNMPINDEX}`, `{#SNMPVALUE}`. However, adhering to these names is not compulsory when creating a [custom](#) low-level discovery rule. Then you may use any other LLD macro name and refer to that name.

### Supported locations

LLD macros can be used:

- in the low-level discovery rule filter
- for item prototypes in
  - names
  - key parameters
  - units
  - update intervals
  - history storage periods
  - trend storage periods
  - item value preprocessing steps
  - SNMP OIDs
  - IPMI sensor fields
  - calculated item formulas
  - SSH and Telnet scripts
  - database monitoring SQL queries
  - JMX item endpoint fields
  - descriptions
  - HTTP agent URL field
  - HTTP agent HTTP query fields field
  - HTTP agent request body field
  - HTTP agent required status codes field
  - HTTP agent headers field key and value
  - HTTP agent HTTP authentication username field
  - HTTP agent HTTP authentication password field

- HTTP agent HTTP proxy field
- HTTP agent HTTP SSL certificate file field
- HTTP agent HTTP SSL key file field
- HTTP agent HTTP SSL key password field
- HTTP agent HTTP timeout field
- for trigger prototypes in
  - names
  - expression (only in constants and function parameters)
  - URLs
  - descriptions
  - event tag names and values
- for graph prototypes in
  - names
- for host prototypes in
  - names
  - visible names
  - host group prototype names
  - (see the [full list](#))

In all those places LLD macros can be used inside user [macro context](#).

## Using macro functions

Macro functions are supported with low-level discovery macros (except in low-level discovery rule filter), allowing to extract a certain part of the macro value using a regular expression.

For example, you may want to extract the customer name and interface number from the following LLD macro for the purposes of event tagging:

```
{#IFALIAS}=customername_1
```

To do so, the `regsub` macro function can be used with the macro in the event tag value field of a trigger prototype:

Tags	
Customer	<code>{{#IFALIAS}.regsub("(.*)_([0-9]+)", \1)}</code> <a href="#">Remove</a>
Interface	<code>{{#IFALIAS}.regsub("(.*)_([0-9]+)", \2)}</code> <a href="#">Remove</a>

For more information on macro function syntax, see: [Macro functions](#)

Macro functions are supported in low-level discovery macros since Zabbix 4.0.

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