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Modul:Arguments/Doku

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This module provides easy processing of arguments passed from #invoke. It is a meta-module, meant for use by other modules, and should not be called from #invoke directly. Its features include:

- Easy trimming of arguments and removal of blank arguments.
- Arguments can be passed by both the current frame and by the parent frame at the same time. (More details below.)
- Arguments can be passed in directly from another Lua module or from the debug console.
- Most features can be customized.

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Basic use

First, you need to load the module. It contains one function, named `getArgs`.

```
local getArgs = require('Module:Arguments').getArgs
```

In the most basic scenario, you can use getArgs inside your main function. The variable `args` is a table containing the arguments from #invoke. (See below for details.)

```
local getArgs = require('Module:Arguments').getArgs
local p = {}

function p.main(frame)
local args = getArgs(frame)
-- Main module code goes here.
end

return p
```

Recommended practice

However, the recommended practice is to use a function just for processing arguments from #invoke. This means that if someone calls your module from another Lua module you don't have to have a frame object available, which improves performance.

```
local getArgs = require('Module:Arguments').getArgs
local p = {}

function p.main(frame)
local args = getArgs(frame)
return p._main(args)
end

function p._main(args)
-- Main module code goes here.
end

return p
```

The way this is called from a template is `{{#invoke:Example|main}}` (optionally with some parameters like `{{#invoke:Example|main|arg1=value1|arg2=value2}}`), and the way this is called from a module is `require('Module:Example')._main({arg1 = 'value1', arg2 = value2, 'spaced arg3' = 'value3'})`. What this second one does is construct a table with the arguments in it, then gives that table to the p._main(args) function, which uses it natively.

Multiple functions

If you want multiple functions to use the arguments, and you also want them to be accessible from #invoke, you can use a wrapper function.

```
local getArgs = require('Module:Arguments').getArgs

local p = {}

local function makeInvokeFunc(funcName)
return function (frame)
local args = getArgs(frame)
return p[funcName](args)
end
end

p.func1 = makeInvokeFunc('_func1')

function p._func1(args)
-- Code for the first function goes here.
end

p.func2 = makeInvokeFunc('_func2')

function p._func2(args)
-- Code for the second function goes here.
end

return p
```

Options

The following options are available. They are explained in the sections below.

```
local args = getArgs(frame, {
trim = false,
removeBlanks = false,
valueFunc = function (key, value)
-- Code for processing one argument
end,
frameOnly = true,
parentOnly = true,
parentFirst = true,
wrappers = {
'Template:A wrapper template',
'Template:Another wrapper template'
},
readOnly = true,
noOverwrite = true
})
```

Trimming and removing blanks

Blank arguments often trip up coders new to converting MediaWiki templates to Lua. In template syntax, blank strings and strings consisting only of whitespace are considered false. However, in Lua, blank strings and strings consisting of whitespace are considered true. This means that if you don't pay attention to such arguments when you write your Lua modules, you might treat something as true that should actually be treated as false. To avoid this, by default this module removes all blank arguments.

Similarly, whitespace can cause problems when dealing with positional arguments. Although whitespace is trimmed for named arguments coming from #invoke, it is preserved for positional arguments. Most of the time this additional whitespace is not desired, so this module trims it off by default.

However, sometimes you want to use blank arguments as input, and sometimes you want to keep additional whitespace. This can be necessary to convert some templates exactly as they were written. If you want to do this, you can set the `trim` and `removeBlanks` arguments to `false`.

```
local args = getArgs(frame, {
trim = false,
removeBlanks = false
})
```

Custom formatting of arguments

Sometimes you want to remove some blank arguments but not others, or perhaps you might want to put all of the positional arguments in lower case. To do things like this you can use the `valueFunc` option. The input to this option must be a function that takes two parameters, `key` and `value`, and returns a single value. This value is what you will get when you access the field `key` in the `args` table.

Example 1: this function preserves whitespace for the first positional argument, but trims all other arguments and removes all other blank arguments.

```
local args = getArgs(frame, {
valueFunc = function (key, value)
if key == 1 then
return value
elseif value then
value = mw.text.trim(value)
if value ~= '' then
return value
end
end
return nil
end
})
```

Example 2: this function removes blank arguments and converts all arguments to lower case, but doesn't trim whitespace from positional parameters.

```
local args = getArgs(frame, {
valueFunc = function (key, value)
if not value then
return nil
end
value = mw.ustring.lower(value)
if mw.ustring.find(value, '%S') then
return value
end
return nil
end
})
```

Note: the above functions will fail if passed input that is not of type `string` or `nil`. This might be the case if you use the `getArgs` function in the main function of your module, and that function is called by another Lua module. In this case, you will need to check the type of your input. This is not a problem if you are using a function specially for arguments from #invoke (i.e. you have `p.main` and `p._main` functions, or something similar).

Vorlage:Cot Example 1:

```
local args = getArgs(frame, {
valueFunc = function (key, value)
if key == 1 then
```

```
return value
elseif type(value) == 'string' then
value = mw.text.trim(value)
if value ~= '' then
return value
else
return nil
end
else
return value
end
end
})
```

Example 2:

```
local args = getArgs(frame, {
valueFunc = function (key, value)
if type(value) == 'string' then
value = mw.ustring.lower(value)
if mw.ustring.find(value, '%S') then
return value
else
return nil
end
else
return value
end
end
})
```

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Also, please note that the `valueFunc` function is called more or less every time an argument is requested from the `args` table, so if you care about performance you should make sure you aren't doing anything inefficient with your code.

Frames and parent frames

Arguments in the `args` table can be passed from the current frame or from its parent frame at the same time. To understand what this means, it is easiest to give an example. Let's say that we have a module called `Module:ExampleArgs`. This module prints the first two positional arguments that it is passed.

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```
local getArgs = require('Module:Arguments').getArgs
local p = {}

function p.main(frame)
local args = getArgs(frame)
return p._main(args)
end

function p._main(args)
local first = args[1] or ''
```

```
local second = args[2] or ''
return first .. ' ' .. second
end

return p
```

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`Module:ExampleArgs` is then called by `Template:ExampleArgs`, which contains the code `{{#invoke:ExampleArgs|main|firstInvokeArg}}`. This produces the result "firstInvokeArg".

Now if we were to call `Template:ExampleArgs`, the following would happen:

Code	Result
{{ExampleArgs}}	firstInvokeArg
{{ExampleArgs|firstTemplateArg}}	firstInvokeArg
{{ExampleArgs|firstTemplateArg|secondTemplateArg}}	firstInvokeArg secondTemplateArg

There are three options you can set to change this behaviour: `frameOnly`, `parentOnly` and `parentFirst`. If you set `frameOnly` then only arguments passed from the current frame will be accepted; if you set `parentOnly` then only arguments passed from the parent frame will be accepted; and if you set `parentFirst` then arguments will be passed from both the current and parent frames, but the parent frame will have priority over the current frame. Here are the results in terms of `Template:ExampleArgs`:

frameOnly

Code	Result
{{ExampleArgs}}	firstInvokeArg
{{ExampleArgs|firstTemplateArg}}	firstInvokeArg
{{ExampleArgs|firstTemplateArg|secondTemplateArg}}	firstInvokeArg

parentOnly

Code	Result
{{ExampleArgs}}	
{{ExampleArgs|firstTemplateArg}}	firstTemplateArg
{{ExampleArgs|firstTemplateArg|secondTemplateArg}}	firstTemplateArg secondTemplateArg

parentFirst

Code	Result
{{ExampleArgs}}	firstInvokeArg

Code	Result
{{ExampleArgs|firstTemplateArg}}	firstTemplateArg
{{ExampleArgs|firstTemplateArg|secondTemplateArg}}	firstTemplateArg secondTemplateArg

Notes:

1. If you set both the `frameOnly` and `parentOnly` options, the module won't fetch any arguments at all from #invoke. This is probably not what you want.
2. In some situations a parent frame may not be available, e.g. if getArgs is passed the parent frame rather than the current frame. In this case, only the frame arguments will be used (unless parentOnly is set, in which case no arguments will be used) and the `parentFirst` and `frameOnly` options will have no effect.

Wrappers

The *wrappers* option is used to specify a limited number of templates as *wrapper templates*, that is, templates whose only purpose is to call a module. If the module detects that it is being called from a wrapper template, it will only check for arguments in the parent frame; otherwise it will only check for arguments in the frame passed to getArgs. This allows modules to be called by either #invoke or through a wrapper template without the loss of performance associated with having to check both the frame and the parent frame for each argument lookup.

For example, the only content of Template:Side box (excluding content in Vorlage:Tag tags) is `{{#invoke:Side box|main}}`. There is no point in checking the arguments passed directly to the #invoke statement for this template, as no arguments will ever be specified there. We can avoid checking arguments passed to #invoke by using the *parentOnly* option, but if we do this then #invoke will not work from other pages either. If this were the case, the Vorlage:Para in the code `{{#invoke:Side box|main|text=Some text}}` would be ignored completely, no matter what page it was used from. By using the `wrappers` option to specify 'Template:Side box' as a wrapper, we can make `{{#invoke:Side box|main|text=Some text}}` work from most pages, while still not requiring that the module check for arguments on the Template:Side box page itself.

Wrappers can be specified either as a string, or as an array of strings.

```
local args = getArgs(frame, {
wrappers = 'Template:Wrapper template'
})
```

```
local args = getArgs(frame, {
wrappers = {
'Template:Wrapper 1',
'Template:Wrapper 2',
-- Any number of wrapper templates can be added here.
}
})
```

Notes:

1. The module will automatically detect if it is being called from a wrapper template's /sandbox subpage, so there is no need to specify sandbox pages explicitly.
2. The *wrappers* option effectively changes the default of the *frameOnly* and *parentOnly* options. If, for example, *parentOnly* were explicitly set to 0 with *wrappers* set, calls via wrapper templates would result in both frame and parent arguments being loaded, though calls not via wrapper templates would result in only frame arguments being loaded.
3. If the *wrappers* option is set and no parent frame is available, the module will always get the arguments from the frame passed to `getArgs`.

Writing to the args table

Sometimes it can be useful to write new values to the args table. This is possible with the default settings of this module. (However, bear in mind that it is usually better coding style to create a new table with your new values and copy arguments from the args table as needed.)

```
args.foo = 'some value'
```

It is possible to alter this behaviour with the `readOnly` and `noOverwrite` options. If `readOnly` is set then it is not possible to write any values to the args table at all. If `noOverwrite` is set, then it is possible to add new values to the table, but it is not possible to add a value if it would overwrite any arguments that are passed from #invoke.

Ref tags

This module uses metatables to fetch arguments from #invoke. This allows access to both the frame arguments and the parent frame arguments without using the `pairs()` function. This can help if your module might be passed Vorlage:Tag tags as input.

As soon as Vorlage:Tag tags are accessed from Lua, they are processed by the MediaWiki software and the reference will appear in the reference list at the bottom of the article. If your module proceeds to omit the reference tag from the output, you will end up with a phantom reference – a reference that appears in the reference list but without any number linking to it. This has been a problem with modules that use `pairs()` to detect whether to use the arguments from the frame or the parent frame, as those modules automatically process every available argument.

This module solves this problem by allowing access to both frame and parent frame arguments, while still only fetching those arguments when it is necessary. The problem will still occur if you use `pairs(args)` elsewhere in your module, however.

Known limitations

The use of metatables also has its downsides. Most of the normal Lua table tools won't work properly on the args table, including the `#` operator, the `next()` function, and the functions in the table library. If using these is important for your module, you should use your own argument processing function instead of this module.