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Blue Gold Program Wiki

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# Module:Arguments/doc

From Blue Gold Program Wiki

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**This is the documentation page for [Module:Arguments](#)**

**This Lua module is used on [approximately 24,100,000 pages, or roughly 1352413% of all pages](#).**

40px To avoid major disruption and server load, any changes should be tested in the module's [/sandbox](#) or [/testcases](#) subpages, or in your own [module sandbox](#). The tested changes can be added to this page in a single edit. Consider discussing changes on the [talk page](#) before implementing them.

**This module is used in system messages.**

40x40px Changes to it can cause immediate changes to the Wikipedia user interface. To avoid large-scale disruption, any changes should first be tested in this module's [/sandbox](#) or [/testcases](#) subpage, or in your own [user space](#). The tested changes can then be added in one single edit to this module. Please discuss any changes on the [talk page](#) before implementing them.

40x40px This module is [subject to page protection](#). It is a [highly visible module](#) in use by a very large number of pages, or is [substituted](#) very frequently. Because vandalism or mistakes would affect many pages, and even trivial editing might cause substantial load on the servers, it is [protected](#) from editing.

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.
- Arguments are fetched as needed, which can help avoid (some) problems with `<ref>...</ref>` tags.
- Most features can be customized.

□

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## Basic use

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

```
<source lang="lua"> local getArgs = require('Module:Arguments').getArgs </source>
```

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.)

```
<source lang="lua"> local getArgs = require('Module:Arguments').getArgs local p = {}
function p.main(frame) local args = getArgs(frame) -- Main module code goes here. end
return p </source>
```

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.

```
<source lang="lua"> 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 </source>
```

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.

```
<source lang="lua"> 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 </source>
```

## Options

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

```
<source lang="lua"> 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 }) </source>
```

## 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`.

```
<source lang="lua"> local args = getArgs(frame, { trim = false, removeBlanks = false }) </source>
```

## 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. 

```
<source lang="lua"> 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 }) </source>
```

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

```
<source lang="lua"> local args = getArgs(frame, { valueFunc = function (key, value) if not value then return nil end value = mw.usttring.lower(value) if mw.usttring.find(value, '%S') then return value end return nil end }) </source>
```

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).

### Examples 1 and 2 with type checking

```
Example 1: <source lang="lua"> 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 }) </source>
```

```
Example 2: <source lang="lua"> local args = getArgs(frame, { valueFunc = function (key, value) if type(value) == 'string' then value = mw.usttring.lower(value) if mw.usttring.find(value, '%S') then return value else return nil end else return value end end }) </source>
```

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.

### Module:ExampleArgs code

```
<source lang="lua"> 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 </source>
```

`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
<code>{{ExampleArgs}}</code>	firstInvokeArg
<code>{{ExampleArgs firstTemplateArg}}</code>	firstInvokeArg
<code>{{ExampleArgs firstTemplateArg secondTemplateArg}}</code>	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
<code>{{ExampleArgs}}</code>	firstInvokeArg
<code>{{ExampleArgs firstTemplateArg}}</code>	firstInvokeArg
<code>{{ExampleArgs firstTemplateArg secondTemplateArg}}</code>	firstInvokeArg

`parentOnly`

Code	Result
<code>{{ExampleArgs}}</code>	
<code>{{ExampleArgs firstTemplateArg}}</code>	firstTemplateArg
<code>{{ExampleArgs firstTemplateArg secondTemplateArg}}</code>	firstTemplateArg secondTemplateArg

`parentFirst`

Code	Result
------	--------

<code>{{ExampleArgs}}</code>	<code>firstInvokeArg</code>
<code>{{ExampleArgs firstTemplateArg}}</code>	<code>firstTemplateArg</code>
<code>{{ExampleArgs firstTemplateArg secondTemplateArg}}</code>	<code>firstTemplateArg secondTemplateArg</code>

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 `<noinclude>...</noinclude>` 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 `|text=Some text` 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.

```
<source lang="lua"> local args = getArgs(frame, { wrappers = 'Template:Wrapper template' })
</source>
```

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

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 `false` 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.)

```
<source lang="lua"> args.foo = 'some value' </source>
```

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 `<ref>...</ref>` tags as input.

As soon as `<ref>...</ref>` 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.

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## Blue Gold Program Wiki

The wiki version of the Lessons Learnt Report of the Blue Gold program, documents the experiences of a technical assistance (TA) team working in a development project implemented by the Bangladesh Water Development Board (BWDB) and the Department of Agricultural Extension (DAE) over an eight+ year period from March 2013 to December 2021. The wiki lessons learnt report (LLR) is intended to complement the BWDB and DAE project completion reports (PCRs), with the aim of recording lessons learnt for use in the design and implementation of future interventions in the coastal zone.

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