

The `l3module` package*

Controlling naming for L^AT_EX3

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1 Namespace management

The module concept should mean that internal macros do not clash in L^AT_EX3. However, there are two issues to address:

1. Ensuring that module prefixes are unique.
2. Handling user macros.

This short module sets out a method by which this might be addressed, by providing a mechanism by which modules can register both a prefix and user macros.

```
\module_details:nn \module_details:nn {<prefix>} {<details>}
```

Registers the *<prefix>* as in use, and creates a record of the *<details>* about the module. The *<details>* should be a key–value list of the properties `name`, `maintainer`, `e-mail` and `homepage`. For example:

```
\module_details:nn {SomePrefix} {  
  name      = SomeExampleModule,  
  maintainer = Some~person,  
  e-mail    = name@domain.com,  
  homepage  = www.some.domain  
}
```

The *<prefix>* reserved, so that if another module tries to use it, an error will be given. The *<details>* are used if a clash occurs to give feedback.

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`\module_reserve:nn` `\module_reserve:nn {<prefix>} {<macro names>}`

Reserves the *<macro names>* and associates them with *<prefix>*. If another module attempts to register the same *<macro names>*, and error will be raised and *<prefix>* will be used to obtain the module details as defined by `\module_details:nn`. For example:

```
\module_reserve:nn {SomePrefix} {  
  \MyMacro,  
  \MySecondMacro,  
  \MyThirdMacro  
}
```

1.1 Variables

`\l_module_clash_tlp`
`\l_module_prefix_tlp` Used to store the prefix string.

`\l_module_detail_tlp`
`\l_module_detail_pre_tlp`
`\l_module_user_tlp` Various csname prefixes.

1.2 Internal functions

`\module_clash_prefix:` `\module_clash_prefix:`
`\module_clash_user:n` `\module_clash_user: {<macro>}`
`\module_clash_info:` `\module_clash_info:`
`\module_clash_info:n` `\module_clash_info:n {<detail>}`

Used to generate for a bad prefix or reserved user macro.

`\module_key_no_value_elt:n` `\module_key_no_value_elt:n {<key>}`
`\module_key_value_elt:nn` `\module_key_value_elt:nn {<key>} {<value>}`

For processing the key–value list.

`\module_reserve:n` `\module_reserve:n {<macro>}`

The hand-off macro for comma-list processing.

1.3 Implementation

The usual preliminaries.

```

1 <*package>
2 \ProvidesExplPackage
3   {\filename}{\filedate}{\fileversion}{\filedescription}
4 \RequirePackage{l3clist,l3keyval,l3messages}

```

`\l_module_clash_tlp` For when a clash happens.

```
5 \tlp_new:N \l_module_clash_tlp
```

`\l_module_detail_tlp` A prefix for storing module details.

`\l_module_detail_pre_tlp`

```

6 \tlp_new:Nn \l_module_detail_tlp
7   { \l_module_detail_pre_tlp \l_module_prefix_tlp _ }
8 \tlp_new:Nn \l_module_detail_pre_tlp { l_module_detail_ }

```

`\l_module_prefix_tlp` The prefix for the current module is stored here.

```
9 \tlp_new:N \l_module_prefix_tlp
```

`\l_module_user_tlp` A space to keep the string used for defining user function names.

```
10 \tlp_new:Nn \l_module_user_tlp { l_module_reserved_ }
```

`\module_clash_prefix:` The calling function will have stored the name of the clashing module in `\l_module_clash_tlp`. Currently, `l3messages` is not really useful, so L^AT_EX 2_ε errors are used.

`\module_clash_user:n`

`\module_clash_info:`

`\module_clash_info:n`

```

11 \def_new:Npn \module_clash_prefix: {
12   \tlp_set_eq:NN \l_module_clash_tlp \l_module_prefix_tlp
13   \PackageError {l3module} {Prefix~clash} {
14     The~prefix~\l_module_prefix_tlp \text_put_sp: has~already~been~
15     taken!
16     \module_clash_info:
17   }
18 }
19 \def_new:Npn \module_clash_user:n #1 {
20   \tlp_set_eq:Nc \l_module_clash_tlp
21   { \l_module_user_tlp \tlist_to_str:n {#1} _tlp }
22   \PackageError {\l_module_prefix_tlp} {Function~name~clash} {
23     The~user~macro~\tlist_to_str:n {#1} has~been~reserved!
24     \module_clash_info:
25   }
26   \clist_map_break:w
27 }
28 \def_new:Npn \module_clash_info: {

```

```

29 \MessageBreak
30 The~details~of~the~conflicting~module:\MessageBreak
31 \text_put_four_sp: Module~Name:~\module_clash_info:n {name}
32 \text_put_four_sp: Maintainer:~\module_clash_info:n {maintainer}
33 \text_put_four_sp: E-mail:~\module_clash_info:n {e-mail}
34 \text_put_four_sp: Homepage:~\module_clash_info:n {homepage}
35 }
36 \def_new:Npn \module_clash_info:n #1 {
37   \cs_if_really_free:cTF {
38     \l_module_detail_pre_tlp \l_module_clash_tlp _ #1_tlp
39   } {
40     <unknown>
41   } {
42     \tlp_use:c { \l_module_detail_pre_tlp \l_module_clash_tlp _ #1_tlp }
43   }
44   \MessageBreak
45 }

```

`\module_details:nn` The details are handed over to the `l3keyval` module to process, after setting up the handlers correctly.

```

46 \def_new:Npn \module_details:nn #1#2 {
47   \tlp_set:Nn \l_module_prefix_tlp {#1}
48   \cs_if_really_free:cTF { \l_module_detail_tlp _prefix_tlp } {
49     \tlp_new:c { \l_module_detail_tlp _prefix_tlp }
50     \tlp_set_eq:cN { \l_module_detail_tlp _prefix_tlp }
51     \l_module_prefix_tlp
52     \let:NN \KV_key_no_value_elt:n \module_key_no_value_elt:n
53     \let:NN \KV_key_value_elt:nn \module_key_value_elt:nn
54     \KV_parse_no_space_removal_no_sanitize:n {#2}
55   } {
56     \module_clash_prefix:
57   }
58 }

```

`\module_key_no_value_elt:n` For parsing the key–value list, parsers are provided for the `l3keyval` module to use. If no value is given, then the input is simply discarded.

`\module_key_value_elt:nn`

```

59 \let_new:NN \module_key_no_value_elt:n \use_none:n
60 \def_new:Npn \module_key_value_elt:nn #1#2 {
61   \tlp_new:cn { \l_module_detail_tlp #1_tlp } {#2}
62 }

```

`\module_reserve:nn` For reserving user macros, where the prefix does not apply. The system is pretty simply.

`\module_reserve:n` For every user function, the name of the module is stored in a tlp.

```

63 \def_new:Npn \module_reserve:nn #1#2 {
64   \tlp_set:Nn \l_module_prefix_tlp {#1}
65   \clist_map_function:nN {#2} \module_reserve:n

```

```

66 }
67 \def:Npn \module_reserve:n #1 {
68   \cs_if_really_free:cTF {
69     \l_module_user_tlp \tlist_to_str:n {#1} _tlp
70   } {
71     \tlp_new:c { \l_module_user_tlp \tlist_to_str:n {#1} _tlp }
72     \tlp_set_eq:cN { \l_module_user_tlp \tlist_to_str:n {#1} _tlp }
73     \l_module_prefix_tlp
74   } {
75     \module_clash_user:n {#1}
76   }
77 }
78 \endpackage

```

The code part of the package finishes here: the rest is the namespace declaration for the module itself.

```

79 \beginnamespace
80 \module_details:nn {module} {
81   name      = l3module,
82   maintainer = Joseph-Wright,
83   e-mail    = joseph.wright@morningstar2.co.uk,
84   homepage  = texdev.net
85 }
86 \endnamespace

```