

Drupal 8 configuration schema cheat sheet

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Configuration schema in Drupal 8 is used to describe the structure of configuration files. It is then applied to:

- Typecast configuration to ensure type consistency (see `StorableConfigBase::castValue()`)
- Automated persistence of configuration entity properties (see `ConfigEntityBase::toArray()`)
- Automated generation of the configuration translation user interface (see the core module)

A simple example

config/install/my_module.settings.yml

```
type: warning
message: 'Hello!'
langcode: en
```

config/schema/my_module.schema.yml

```
my_module.settings:
  type: mapping
  mapping:
    type:
      type: string
      label: 'Message type'
    message:
      type: label
      label: 'Message text'
    langcode:
      type: string
      label: 'Language code'
```

← Settings in config

← Used internally for translation

Basic schema types

Core provides the following data types. Contributed modules may define new base types. More are defined in `core.data_types.schema.yml`.

Scalar types

boolean

integer

float

string

uri

email

Subtyping

All of configuration schema is basically subtyping from existing types. The simple example earlier is subtyping *mapping* with defined keys that have their own types.

List types

mapping: known keys

sequence: unknown keys

The only difference between the two list types is **in mappings you know the keys.**

Common subtypes

label: short & translatable

text: long & translatable

Types *route*, *filter*, *mail*, etc. are provided for common complex Drupal data structures.

Dynamic type with [%parent]

Exact types may not be known ahead of time and may depend on the data. Schema allows to define types based on the data as well. Let's say the type of *message* may depend on the *type* value: either a list of messages or a simple warning message. Let's use *'multiple'* for the list case and keep *'warning'* for the single line message.

config/install/my_module.message.single.yml

```
type: warning
message: 'Hello!'
langcode: en
```

config/install/my_module.message.multiple.yml

```
type: multiple
message:
  - 'Hello!'
  - 'Hi!'
langcode: en
```

config/schema/my_module.schema.yml

```
my_module.message.*:
  type: mapping
  mapping:
    type:
      type: string
      label: 'Message type'
    message:
      type: my_module_message.[%parent.type]
    langcode:
      type: string
      label: 'Language code'
```

← Used wildcard so it applies to a set of config names.

← Dynamic element type based on data

```
my_module_message.warning:
  type: string
  label: 'Message'
```

```
my_module_message.multiple:
  type: sequence
  label: 'Messages'
  sequence:
    - type: string
      label: 'Message'
```

← Internal types prefixed with module name but avoid conflict with top level types.

Chaining is possible as `%parent.%parent.type`, etc.

Dynamic type with [type]

If the data to vary type by is under the data to be typed, that is when [type] becomes useful.

config/install/my_module.message.single.yml

```
message:
  type: warning
  value: 'Hello!'
  langcode: en
```

config/install/my_module.message.multiple.yml

```
message:
  type: multiple
  value:
    - 'Hello!'
    - 'Hi!'
  langcode: en
```

config/schema/my_module.schema.yml

```
my_module_message.*:
  type: mapping
  mapping:
    message:
      type: my_module_message.[type]
  [...]

my_module_message.warning:
  type: mapping
  [...]

my_module_message.multiple:
  type: mapping
  [...]
```

Use the type key under the message

Need to define type and value keys as appropriate.

You may also define a **my_module_message_base** base type that includes common keys like 'type' and extend from that with any custom keys per type.

Dynamic type with [%key]

config/install/my_module.messages.yml

```
messages:
  'single:1': 'Hello!'
  'single:2': 'Hi!'
  'multiple:1':
    - 'Good morning!'
    - 'Good night!'
  langcode: en
```

Arbitrary message list

This is now a list of arbitrary message elements.

config/schema/my_module.schema.yml

```
my_module_messages:
  type: mapping
  mapping:
    message:
      type: sequence
      label: 'Messages'
      sequence:
        - type: my_module_message.[%key]
    langcode:
      type: string
      label: 'Language code'

my_module_message.single.*:
  type: string
  label: 'Message'

my_module_message.multiple.*:
  type: sequence
  label: 'Messages'
  sequence:
    - type: string
    label: 'Message'
```

Type is in the key as prefix, e.g. 'single:1'

Wildcard to match prefix.

Schema debugging

To debug configuration schemas use the Configuration Inspector module (http://drupal.org/project/config_inspector) which helps you find schema mismatches with active configuration and inspect how your schema is applied to your configuration.

Schema testing

- All TestBase deriving tests in core now use `$strictConfigSchema = TRUE` which results in strict scheme adherence testing for all configuration saved. Only opt out of this if you *really* need to. Your schema should match your data and pass this test.
- Use `SchemaCheckTestTrait` in you test to check for specific config files only.

More documentation

See <https://www.drupal.org/node/1905070> for even more configuration schema documentation and examples.

Issues?

- For issues with core configuration schemas, tag them with 'Configuration schema' and 'Configuration system' and pick the appropriate module as component.
- For issues with the configuration schema system itself, use the 'configuration system' component.

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