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# **BeerYAML Documentation**

***Release 1.0***

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# CHAPTER 1

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## Purpose

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### **Why are you using another format since beerxml is widely used ?**

The reason is very simple, **XML** is very verbose. Furthermore **beerxml** format is a very complete data description containing lots of mandatory keys which can be irrelevant for your recipe. This two formats have their own purpose and are well formatted markup languages. The goal of this project is not to replace beerxml but to make it simpler to use in plain text files.

The main purpose of storing recipes in the **YAML** format is to make recipes more human-readable. It should be really simple to write your own recipes in a simple format and read it without needing to use an external software.



## CHAPTER 2

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### General

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Brewing data will follow the YAML standard as a basis. The format shares the mandatory fields with the beerxml format, then the format parser should be able to export the recipe into beerxml format. In addition, the format supports all kind of optional tags. These tags must be parsed by a program to be compliant.





## CHAPTER 3

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### Differences

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Unlike beerxml format records, a *VERSION* tag is not required in BeerYAML. However it is highly recommended for a parser to set this tag to be compatible with beerxml format.

A style tag is required for *Recipe* like in the beerxml format. However this tag can either be a *string* or a list of values like in beerxml format. See *Style* section for more information.

Recipe record sets are optionnals and should be set empty by the parser when exporting to xml.

It is possible to define a record set name by its YAML key. Thus

```
mash_steps:
  proteic:
    step_time: 60
    step_temp: 100
    type: Infusion
```

must be equal to

```
mash_steps:
  mash_step:
    name: proteic
    step_time: 60
    step_temp: 100
    type: Infusion
```



## CHAPTER 4

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### Recipe

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Data tag	Description
name	Name of the recipe
type	May be one of “Extract”, “Partial Mash” or “All Grain”
style	The style of the beer
brewer	Name of the brewer
batch_size	Target size of the finished batch
boil_size	Starting size for the main boil of the wort
boil_time	The total time to boil the wort

*An example of minimal recipe*

```
name: Test
brewer: TROUVERIE Joachim
type: All Grain
batch_size: 10.0
boil_time: 60.0
boil_size: 15.0
style: Test
```



## CHAPTER 5

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### Style

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A recipe's style can be stored by only its name, like in the example above, or defining the following tags.

Data tag	Description
name	Name of the style profile
category	Category that this style belongs to – usually associated with a group of styles such as “English Ales” or “American Lagers”.
category_number	Number or identifier associated with this style category. For example in the BJCP style guide, the “American Lager” category has a category number of “1”.
style_letter	The specific style number or subcategory letter associated with this particular style. For example in the BJCP style guide, an American Standard Lager would be style letter “A” under the main category. Letters should be upper case.
style_guide	The name of the style guide that this particular style or category belongs to. For example “BJCP” might denote the BJCP style guide, and “AHA” would be used for the AHA style guide.
type	May be “Lager”, “Ale”, “Mead”, “Wheat”, “Mixed” or “Cider” Defines the type of beverage associated with this category.
og_min	The minimum specific gravity as measured relative to water. For example “1.040” might be a reasonable minimum for a Pale Ale.
og_max	The maximum specific gravity as measured relative to water.
fg_min	The minimum final gravity as measured relative to water.
fg_max	The maximum final gravity as measured relative to water.
ibu_min	The recommended minimum bitterness for this style as measured in International Bitterness Units (IBUs)
ibu_max	The recommended maximum bitterness for this style as measured in International Bitterness Units (IBUs)
color_min	The minimum recommended color
color_max	The maximum recommended color

*Let's see an example with the previous recipe.*

```
name: Test
# [...] recipe mandatory keys
style:
  name: Bohemian Pilsner
  category: European Pale Ale
  category_number: 2
  style_letter: A
  style_guide: BJCP
  type: Lager
  og_min: 1.044
  og_max: 1.056
  fg_min: 1.013
  fg_max: 1.017
  ibu_min: 35.0
  ibu_max: 45.0
  color_min: 3.0
  color_max: 5.0
```

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## Hops

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Hops composing the recipe. These keys are stored using a *hops* parent key. As mentioned in the *Differences* section, the hop name can be defined by its YAML key.

Data tag	Description
name	Name of the hop
alpha	Percent alpha of hop
amount	Weight of the hop used in the recipe
use	May be “Boil”, “Dry Hop”, “Mash”, “First Wort” or “Aroma”
time	The time of use

### Example

```
name: Test
# [...] recipe mandatory keys
hops:
  Cascade:
    alpha: 5.0
    amount: 0.100 Kg
    use: Boil
    time: 60 min
```





## CHAPTER 7

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### Fermentables

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Fermentables composing the recipe including extracts, grains, sugars, honey, fruits. These keys are stored using a *fermentables* parent key. As mentioned in the *Differences* section, the fermentable name can be defined by its YAML key.

Data tag	Description
name	Name of the fermentable
type	May be “Grain”, “Sugar”, “Extract”, “Dry Extract” or “Adjunct”. Extract refers to liquid extract.
amount	Extract refers to liquid extract.
yield	Percent dry yield (fine grain) for the grain, or the raw yield by weight if this is an extract adjunct or sugar
color	The color of the item

#### Example

```
name: Test
# [...] recipe mandatory keys
fermentables:
  Pale 2-row Malt:
    amount: 5.0
    type: Grain
    yield: 73.4
    color: 3.0 EBC
```



## CHAPTER 8

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### Yeasts

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The term “yeast” encompasses all yeasts, including dry yeast, liquid yeast and yeast starters. These keys are stored using a *yeasts* parent key. As mentioned in the *Differences* section, the yeast name can be defined by its YAML key.

Data tag	Description
name	Name of the yeast
type	May be “Ale”, “Lager”, “Wheat”, “Wine” or “Champagne”
form	May be “Liquid”, “Dry”, “Slant” or “Culture”
amount	The amount of yeast

#### Example

```
name: Test
# [...] recipe mandatory keys
yeasts:
  Ole English Ale Yeast:
    amount: 0.1
    type: Ale
    form: Liquid
```



## CHAPTER 9

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### Miscs

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The term “misc” encompasses all non-fermentable miscellaneous ingredients that are not hops or yeast and do not significantly change the gravity of the beer. These keys are stored using a *miscs* parent key. As mentioned in the *Differences* section, the misc name can be defined by its YAML key.

Data tag	Description
name	Name of the misc item
type	May be “Spice”, “Fining”, “Water Agent”, “Herb”, “Flavor” or “Other”
use	May be “Boil”, “Mash”, “Primary”, “Secondary”, “Bottling”
time	Amount of time the misc was used
amount	Amount of item used

#### Example

```
name: Test
# [...] recipe mandatory keys
miscs:
  Irish Moss:
    type: Fining
    use: Boil
    time: 15.0
    amount: 0.1
```



## CHAPTER 10

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### Mash profile

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A mash profile is a record used either within a recipe or outside the recipe to precisely specify the mash method used. These keys are stored using a *mash* parent key. The record consists of some informational items followed by a *mash\_steps* key.

Data tag	Description
name	Name of the mash profile
grain_temp	The temperature of the grain before adding it to the mash

#### Example

```
name: Test
# [...] recipe mandatory keys
mash:
  name: Single Step Infusion, 68 C
  grain_temp: 22°C
```





# CHAPTER 11

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## Mash steps

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A mash step is an internal record used within a mash profile to denote a separate step in a multi-step mash. A mash step is not intended for use outside of a *Mash profile*.

These keys are stored using a *mash\_steps* parent key. As mentioned in the *Differences* section, the mash\_step name can be defined by its YAML key.

Data tag	Description
name	Name of the mash step – usually descriptive text such as “Dough In” or “Conversion”
type	May be “Infusion”, “Temperature” or “Decoction” depending on the type of step
step_temp	The target temperature for this step
step_time	The number of minutes to spend at this step

### Example

```
name: Test
# [...] recipe mandatory keys
mash:
  name: Single Step Infusion, 68 C
  grain_temp: 22°C
  mash_steps:
    Conversion step:
      type: Decoction
      step_temp: 68
      step_time: 90
```



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## Waters

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The term “water” encompasses water profiles. Though not strictly required for recipes, the water record allows supporting programs to record the water profile used for brewing a particular batch. These keys are stored using a *waters* parent key. As mentioned in the *Differences* section, the water name can be defined by its YAML key.

Data tag	Description
name	Name of the water profile
amount	Volume of water
calcium	The amount of Calcium
bicarbonate	The amount of Bicarbonate
sulfate	The amount of Sulfate
chloride	The amount of Chloride
sodium	The amount of Sodium
magnesium	The amount of Magnesium
ph	The pH of the water

### Example

```
name: Test
# [...] recipe mandatory keys
waters:
  Burton on Trent, UK:
    amount: 20.0
    calcium: 295.0
    magnesium: 45.0
    sodium: 55.0
    sulfate: 725.0
    chloride: 25.0
    bicarbonate: 300.0
    ph: 8.0
```



# CHAPTER 13

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## Examples

---

```
<RECIPE>
  <NAME>Dry Stout</NAME>
  <VERSION>1</VERSION>
  <TYPE>All Grain</TYPE>
  <BREWER>Brad Smith</BREWER>
  <BATCH_SIZE>18.93</BATCH_SIZE>
  <BOIL_SIZE>20.82</BOIL_SIZE>
  <BOIL_TIME>60.0</BOIL_TIME>
  <EFFICIENCY>72.0</EFFICIENCY>
  <TASTE_NOTES>
    Nice dry Irish stout with a warm body but low starting gravity much like
    the famous drafts.
  </TASTE_NOTES>
  <RATING>41</RATING>
  <DATE>3 Jan 04</DATE>
  <OG>1.036</OG>
  <FG>1.012</FG>
  <CARBONATION>2.1</CARBONATION>
  <CARBONATION_USED>Kegged</CARBONATION_USED>
  <AGE>24.0</AGE>
  <AGE_TEMP>17.0</AGE_TEMP>
  <FERMENTATION_STAGES>2</FERMENTATION_STAGES>
  <STYLE>
    <NAME>Dry Stout</NAME>
    <CATEGORY>Stout</CATEGORY>
    <CATEGORY_NUMBER>16</CATEGORY_NUMBER>
    <STYLE_LETTER>A</STYLE_LETTER>
    <STYLE_GUIDE>BJCP</STYLE_GUIDE>
    <VERSION>1</VERSION>
    <TYPE>Ale</TYPE>
    <OG_MIN>1.035</OG_MIN>
    <OG_MAX>1.050</OG_MAX>
    <FG_MIN>1.007</FG_MIN>
    <FG_MAX>1.011</FG_MAX>
    <IBU_MIN>30.0</IBU_MIN>
```

```
<IBU_MAX>50.0</IBU_MAX>
<COLOR_MIN>35.0</COLOR_MIN>
<COLOR_MAX>200.0</COLOR_MAX>
<ABV_MIN>3.2</ABV_MIN>
<ABV_MAX>5.5</ABV_MAX>
<CARB_MIN>1.6</CARB_MIN>
<CARB_MAX>2.1</CARB_MAX>
<NOTES>
  Famous Irish Stout. Dry, roasted, almost coffee like flavor. Often
  soured with pasteurized sour beer. Full body perception due to flaked
  barley, though starting gravity may be low. Dry roasted flavor.
</NOTES>
</STYLE>
<HOPS>
  <HOP>
    <NAME>Goldings, East Kent</NAME>
    <VERSION>1</VERSION>
    <ALPHA>5.0</ALPHA>
    <AMOUNT>0.0638</AMOUNT>
    <USE>Boil</USE>
    <TIME>60.0</TIME>
    <NOTES>Great all purpose UK hop for ales, stouts, porters</NOTES>
  </HOP>
</HOPS>
<FERMENTABLES>
  <FERMENTABLE>
    <NAME>Pale Malt (2 row) UK</NAME>
    <VERSION>1</VERSION>
    <AMOUNT>2.27</AMOUNT>
    <TYPE>Grain</TYPE>
    <YIELD>78.0</YIELD>
    <COLOR>3.0</COLOR>
    <ORIGIN>United Kingdom</ORIGIN>
    <SUPPLIER>Fussybrewer Malting</SUPPLIER>
    <NOTES>All purpose base malt for English styles</NOTES>
    <COARSE_FINE_DIFF>1.5</COARSE_FINE_DIFF>
    <MOISTURE>4.0</MOISTURE>
    <DIASTATIC_POWER>45.0</DISASTATIC_POWER>
    <PROTEIN>10.2</PROTEIN>
    <MAX_IN_BATCH>100.0</MAX_IN_BATCH>
  </FERMENTABLE>
  <FERMENTABLE>
    <NAME>Barley, Flaked</NAME>
    <VERSION>1</VERSION>
    <AMOUNT>0.91</AMOUNT>
    <TYPE>Grain</TYPE>
    <YIELD>70.0</YIELD>
    <COLOR>2.0</COLOR>
    <ORIGIN>United Kingdom</ORIGIN>
    <SUPPLIER>Fussybrewer Malting</SUPPLIER>
    <NOTES>Adds body to porters and stouts, must be mashed</NOTES>
    <COARSE_FINE_DIFF>1.5</COARSE_FINE_DIFF>
    <MOISTURE>9.0</MOISTURE>
    <DIASTATIC_POWER>0.0</DISASTATIC_POWER>
    <PROTEIN>13.2</PROTEIN>
    <MAX_IN_BATCH>20.0</MAX_IN_BATCH>
    <RECOMMEND_MASH>TRUE</RECOMMEND_MASH>
  </FERMENTABLE>
```

```

<FERMENTABLE>
  <NAME>Black Barley</NAME>
  <VERSION>1</VERSION>
  <AMOUNT>0.45</AMOUNT>
  <TYPE>Grain</TYPE>
  <YIELD>78.0</YIELD>
  <COLOR>500.0</COLOR>
  <ORIGIN>United Kingdom</ORIGIN>
  <SUPPLIER>Fussybrewer Malting</SUPPLIER>
  <NOTES>Unmalted roasted barley for stouts, porters</NOTES>
  <COARSE_FINE_DIFF>1.5</COARSE_FINE_DIFF>
  <MOISTURE>5.0</MOISTURE>
  <DIASTATIC_POWER>0.0</DISASTATIC_POWER>
  <PROTEIN>13.2</PROTEIN>
  <MAX_IN_BATCH>10.0</MAX_IN_BATCH>
</FERMENTABLE>
</FERMENTABLES>
<MISCS>
  <MISC>
    <NAME>Irish Moss</NAME>
    <VERSION>1</VERSION>
    <TYPE>Fining</TYPE>
    <USE>Boil</USE>
    <TIME>15.0</TIME>
    <AMOUNT>0.010</AMOUNT>
    <NOTES>
      Used as a clarifying agent during the last few minutes of the boil
    </NOTES>
  </MISC>
</MISCS>
<WATERS>
  <WATER>
    <NAME>Burton on Trent, UK</NAME>
    <VERSION>1</VERSION>
    <AMOUNT>20.0</AMOUNT>
    <CALCIUM>295.0</CALCIUM>
    <MAGNESIUM>45.0</MAGNESIUM>
    <SODIUM>55.0</SODIUM>
    <SULFATE>725.0</SULFATE>
    <CHLORIDE>25.0</CHLORIDE>
    <BICARBONATE>300.0</BICARBONATE>
    <PH>8.0</PH>
    <NOTES>
      Use for distinctive pale ales strongly hopped.
      Very hard water accentuates the hops flavor. Example: Bass Ale
    </NOTES>
  </WATER>
</WATERS>
<YEASTS>
  <YEAST>
    <NAME>Irish Ale</NAME>
    <TYPE>Ale</TYPE>
    <VERSION>1</VERSION>
    <FORM>Liquid</FORM>
    <AMOUNT>0.250</AMOUNT>
    <LABORATORY>Wyeast Labs</LABORATORY>
    <PRODUCT_ID>1084</PRODUCT_ID>
    <MIN_TEMPERATURE>16.7</MIN_TEMPERATURE>

```

```
<MAX_TEMPERATURE>22.2</MAX_TEMPERATURE>
<ATTENUATION>73.0</ATTENUATION>
<NOTES>
  Dry, fruity flavor characteristic of stouts. Full bodied, dry,
  clean flavor.
</NOTES>
<BEST_FOR>Irish Dry Stouts</BEST_FOR>
<FLOCCULATION>Medium</FLOCCULATION>
</YEAST>
</YEASTS>
<MASH>
  <NAME>Single Step Infusion, 68 C</NAME>
  <VERSION>1</VERSION>
  <GRAIN_TEMP>22.0</GRAIN_TEMP>
  <MASH_STEPS>
    <MASH_STEP>
      <NAME>Conversion Step, 68C </NAME>
      <VERSION>1</VERSION>
      <TYPE>Infusion</TYPE>
      <STEP_TEMP>68.0</STEP_TEMP>
      <STEP_TIME>60.0</STEP_TIME>
      <INFUSE_AMOUNT>10.0</INFUSE_AMOUNT>
    </MASH_STEP>
  </MASH_STEPS>
</MASH>
</RECIPE>
```

```
# equivalent in YAML
name: Dry Stout
type: All Grain
brewer: Brad Smith
batch_size: 18.93
boil_size: 20.82
boil_time: 60
efficiency: 72.0
taste_notes: >
  Nice dry Irish stout with a warm body but low starting gravity much
  like the famous drafts
rating: 41
date: 3 Jan 04
og: 1.036
fg: 1.012
carbonation: 2.1
carbonation_used: Kegged
age: 24
age_temp: 17.0
fermentation_stages: 2
style:
  name: Dry Stout
  category: Stout
  category_number: 16
  style_letter: A
  style_guide: BJCP
  type: Ale
  og_min: 1.035
  og_max: 1.050
  fg_min: 1.007
  fg_max: 1.011
```



```

ibu_min: 30.0
ibu_max: 50.0
color_min: 35.0
color_max: 200.0
abv_min: 3.2
abv_max: 5.5
carb_min: 1.6
carb_max: 2.1
notes: >
    Famous Irish Stout. Dry, roasted, almost coffee like flavor. Often
    soured with pasteurized sour beer. Full body perception due to flaked
    barley, though starting gravity may be low. Dry roasted flavor.
hops:
    Goldings, East Kent:
        alpha: 5.0
        use: boil
        time: 60.0
        amount: 0.0638
        notes: Great all purpose UK hop for ales, stouts, porters
fermentables:
    Pale Malt (2 row) UK:
        amount: 2.27
        type: Grain
        yield: 78.0
        color: 3.0
        origin: United Kingdom
        supplier: Fussybrewer Malting
        notes: All purpose base malt for English styles
        coarse_fine_diff: 1.5
        moisture: 4.0
        diastatic_power: 45.0
        protein: 10.2
        max_in_batch: 100.0
    Barley, Flaked:
        amount: 0.91
        type: grain
        yield: 70.0
        color: 2.0
        origin: United Kingdom
        supplier: Fussybrewer Malting
        notes: Adds body to porters and stouts, must be mashed
        coarse_fine_diff: 1.5
        moisture: 9.0
        diastatic_power: 0.0
        protein: 13.2
        max_in_batch: 20.0
        recommend_mash: true
    Black Barley:
        amount: 0.45
        type: grain
        yield: 78.0
        color: 500
        origin: United Kingdom
        supplier: Fussybrewer Malting
        notes: Unmalted roasted barley for stouts, porters
        coarse_fine_diff: 1.5
        moisture: 5.0
        diastatic_power: 0.0

```

```
    protein: 13.2
    max_in_batch: 10.0
miscs:
  Irish Moss:
    type: Fining
    use: Boil
    time: 15
    amount: 0.010
    notes: >
      Used as a clarifying agent during the last few minutes of the boil
waters:
  Burton on Trent, UK:
    amount: 20.0
    calcium: 295.0
    magnesium: 45.0
    sodium: 55.0
    sulfate: 725.0
    chloride: 25.0
    bicarbonate: 300.0
    ph: 8.0
    notes: >
      Use for distinctive pale ales strongly hopped.
      Very hard water accentuates the hops flavor. Example: Bass Ale
yeasts:
  Irish Ale:
    type: ale
    form: Liquid
    amount: 0.25
    laboratory: wyeast labs
    product_id: 1084
    min_temperature: 16.7
    max_temperature: 22.2
    attenuation: 73.0
    notes: >
      Dry, fruity flavor characteristic of stouts.
      Full bodied, dry, clean flavor.
    best_for: irish dry stouts
    flocculation: medium
mash:
  name: Single Step infusion, 68 C
  grain_temp: 22.0
  mash_steps:
    Conversion step, 68C:
      type: infusion
      step_temp: 68.0
      step_time: 60.0
      infuse_amount: 10.0
```

---

### Simple recipe

```
name: Dry Stout
type: All Grain
brewer: Brad Smith
batch_size: 18.93
boil_size: 20.82
boil_time: 60
style: Dry Stout
```

```
hops:
  Goldings, East Kent:
    alpha: 5.0
    use: boil
    time: 60.0
    amount: 0.0638
fermentables:
  Pale Malt (2 row) UK:
    amount: 2.27
    type: Grain
    yield: 78.0
    color: 3.0
  Barley, Flaked:
    amount: 0.91
    type: grain
    yield: 70.0
    color: 2.0
  Black Barley:
    amount: 0.45
    type: grain
    yield: 78.0
    color: 500
miscs:
  Irish Moss:
    type: Fining
    use: Boil
    time: 15
    amount: 0.010
yeasts:
  Irish Ale:
    type: ale
    form: Liquid
    amount: 0.25
mash:
  name: Single Step infusion, 68 C
  grain_temp: 22.0
  mash_steps:
    Conversion step, 68C:
      type: infusion
      step_temp: 68.0
      step_time: 60.0
```



## CHAPTER 14

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### Implementations

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- Python <http://pybeeryaml.readthedocs.io/>