

**Something is  
brewing in the OE  
world**





# HELLO!

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I am here because I love beer and Openedge  
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# INSTRUCTIONS FOR USE

**Sit back and enjoy**

Beer

Openedge

What could be better ?

**There is no such thing as free beer ...**






1.


# Beer

Something close to all of our hearts ...





**IN WINE  
THERE IS WISDOM,  
IN BEER  
THERE IS FREEDOM,  
IN WATER  
THERE IS BACTERIA.**





# The Beer part

Homebrewing essentials





# The basics

## Beer is the ..

- » Oldest,
- » Most widely consumed,
- » Third most popular\*\*

beverage in the world

## Ingredients

- » Water
- » Grain
- » Hops
- » Yeast

\*\* except at Pug Challenge



**A PICTURE IS WORTH A THOUSAND WORDS**







# Grain

Several types of grain

- » Barley, wheat, rye, maize, oats

Grain is converted to malt

- » Dried in a process known as “malting”
- » Develops enzymes to convert starch to sugar



# Hops

Flowering cones of the `Humulus Lupulus` plant

Thousands of varieties

- » Adds flavour and aroma
- » Preserves beer
- » Sold as whole leaf or pelletized hops





# Water

Up to 97% of beer is water

- » With the exception of Bud, Bud lite etc

Mineral content affects

- » Ph, clarity, enzyme activity

Water type (soft / hard) affects perceived flavour





## And, finally - Yeast

Single most essential piece of the puzzle

Yes, it's a fungus (*Saccharomyces*)


- » confers protection against pathogenic microorganisms in the host
- » Therefore, drink more beer to be healthy

Consumes sugars and converts them into alcohol





# Flavours and Aromas (malt)

- » Bready
  - » Coffee
  - » Chocolate
  - » Toffee
  - » Caramel
  - » etc
- 



## Flavours and Aromas (hops)

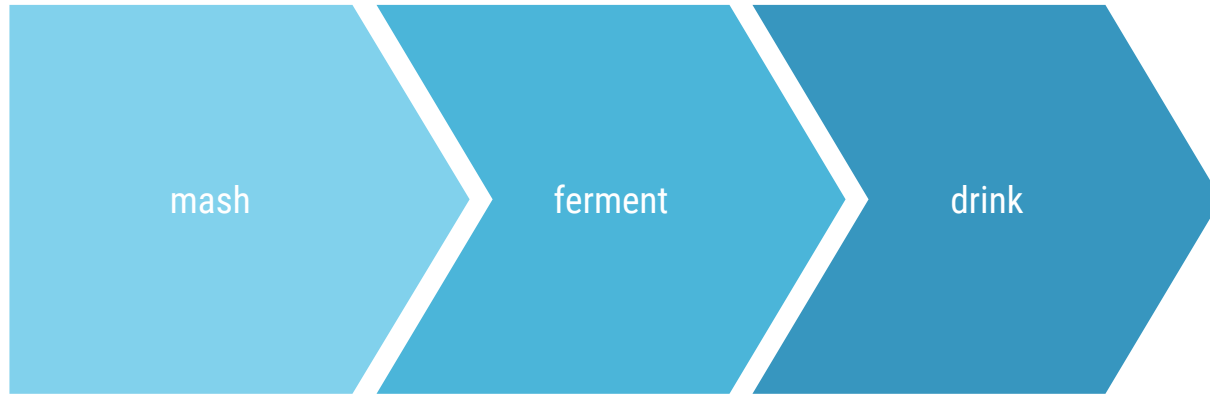
- » Pine
- » Bitterness
- » Spicy
- » Citrus
- » Floral

Malts give a sweet counterpoint to the bitterness of hops.





# The brewing process



# The equipment

Kettle (20L)

» Mash and sparger

Wort chiller

Fermenting barrel

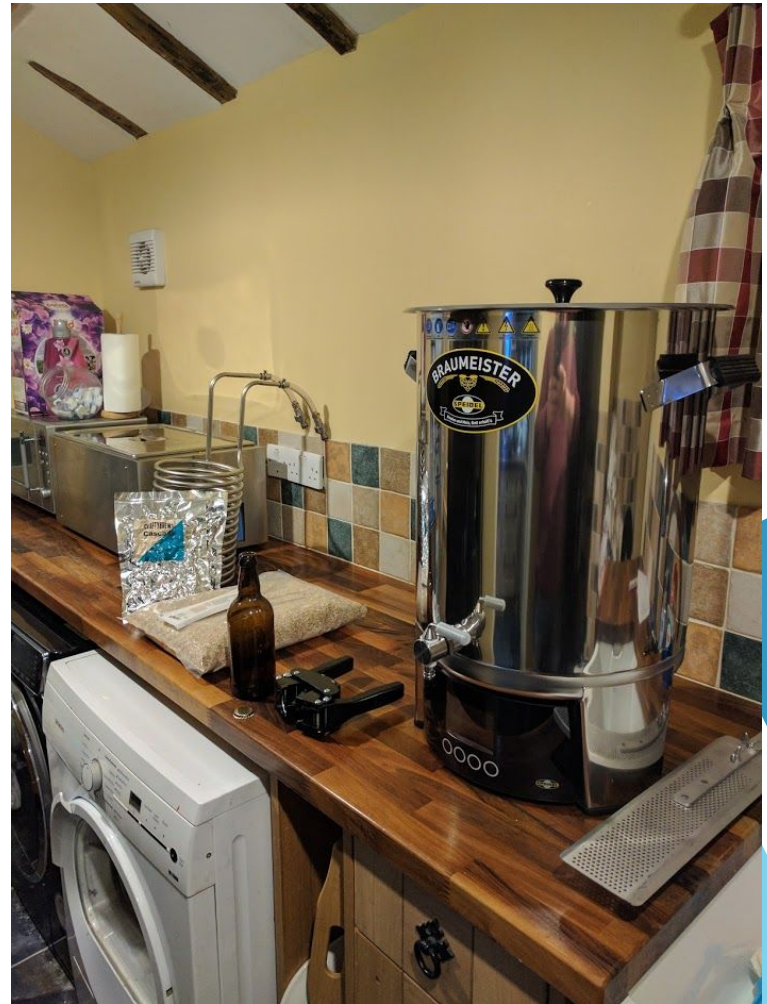
Some accessories





# Brick Barn Brewery

Aka the utility room



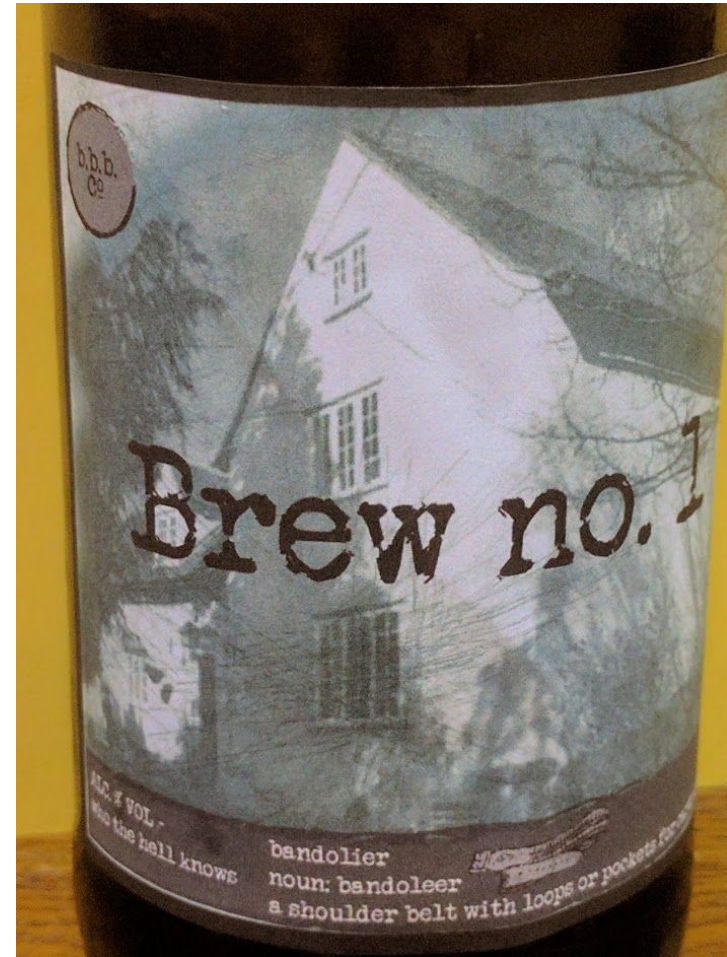
# Brew #1

- » Dry, light malt
- » Mosaic hops
- » Cascade hops
- » enthusiasm



# Brew #1

- » result!
- » Very refreshing
- » Well received
- »





2.

# Computing

Also something close to all of our hearts ...





# How does computing fit in here ?

Kettle has electronic “brain”

- » Silly, like most movies/tv shows
- » “Programmed” by hand
- » Not “other things to do” friendly

Wouldn't it be great if we could connect it to the internet ... ?





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yay!

Plugs into base of kettle

*“With this module you can sync your recipes with the Braumeister and also monitor and control him during the brewing process while you are logged in to you wireless internet connection. So while sitting on the couch, you know what is happening in the brewing kitchen.”*





# Boo! Hiss!

Wifi unit talks to <http://www.myspeidel.com>

No native app

Have to login to internet site

Stupid! Stupid! Stupid!







## Let's fix this

Scan traffic of kettle <ip address>

- » Using fiddler (free download from telerik)
- » Linux beta version. Hey, we're bleeding edge here !

Myspeidel "posts" to the kettle

- » <ip>/rz.txt
  - » <ip>/bm.txt
- 



# Let's fix this (rz - recipes)

rz=[0] [X54] [X<temp>X<time>] [X<boil temp>X<time>] [X<hop time>].beer

X is delimiter

Recipe 0, mash @ 54

5 steps of temp and time,  
boil temp and time

6 hop times

Beer name





## Let's fix this (rz - recipes)

POST to <ip>/rz.txt

loads recipes into available slots (10)

POST to <ip>/rz.txt?d=<n>

Deletes recipes (n = 0..9, a for all)





# BeerXML !

BeerXML is a standard beer recipe format

<http://www.beerxml.com/>

Take xml, parse to braumeister format, post to kettle

Job done

All I have to do now is go to the machine, press start ...

Oh, and load water etc. Haven't figured out how to automate!






# Recording information

All very well brewing beer

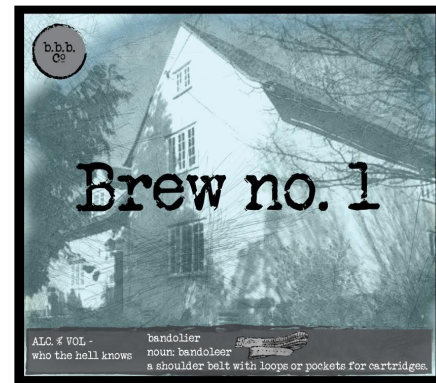
Need to know results

- » How, what, when, why ?
  - » Abv ? taste ? colour ? Clarity
  - » Ingredient variances
- 

# Brew #1

## Startup project


- » Agile development
- » We're going to be like brewdog!
  - ◇ 2007 2 employees
  - ◇ 2016 580 employees (\$72m turnover)
  - ◇ Open source beer recipes
  - ◇ annual growth rate 69%
  - ◇ annual operating profit growth 112%





# Brew #1

Excellent result

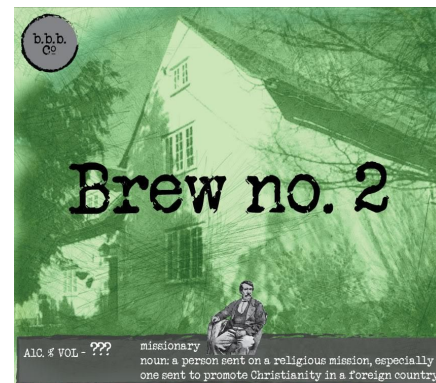
- » No idea on abv (I forgot)
  - » A few blowouts
  - » I should store this data, and related notes etc somewhere
  - » I'll do that with brew#2
- 

# Brew #2

Titanic failure

- » No idea on abv (I forgot)
- » Looked wrong from the start
- » Data must have been bad!

Decided to blame the mongo database ..

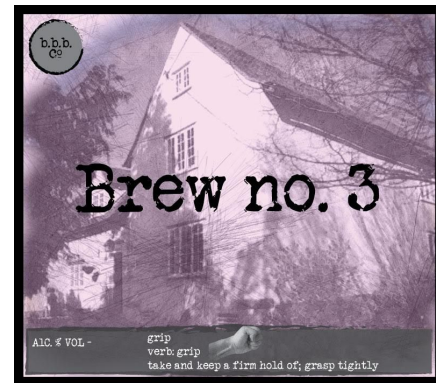




# Brew #3

## Work in Progress

- » Using webspidee & node
- » DNS hijacking to make kettle talk direct to node
- » Node formats and responds as appropriate
- » Passes onto webspidee
- » Angular ui to pick recipe and send it
- » Progress records all relevant information into the database





# Openedge is the system of record

Keeps the most important things safe

- » Recipes
- » Historical information

Use grafana and influx for statistics ...





**THANKS!**

**Any questions?**

**Let's talk about beer, baby**

