PREPARING YOUR MODEL FOR TAKE OFF!

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PRODUCTION?

https://commons.wikimedia.org/wiki/File:Jetstar%27s_first_787_on_the_production_line_(9132370198).jpg

PRE-FLIGHT CHECKS

?

PREPARING FOR TAKE OFF: COMMAND LINE ARGUMENTS

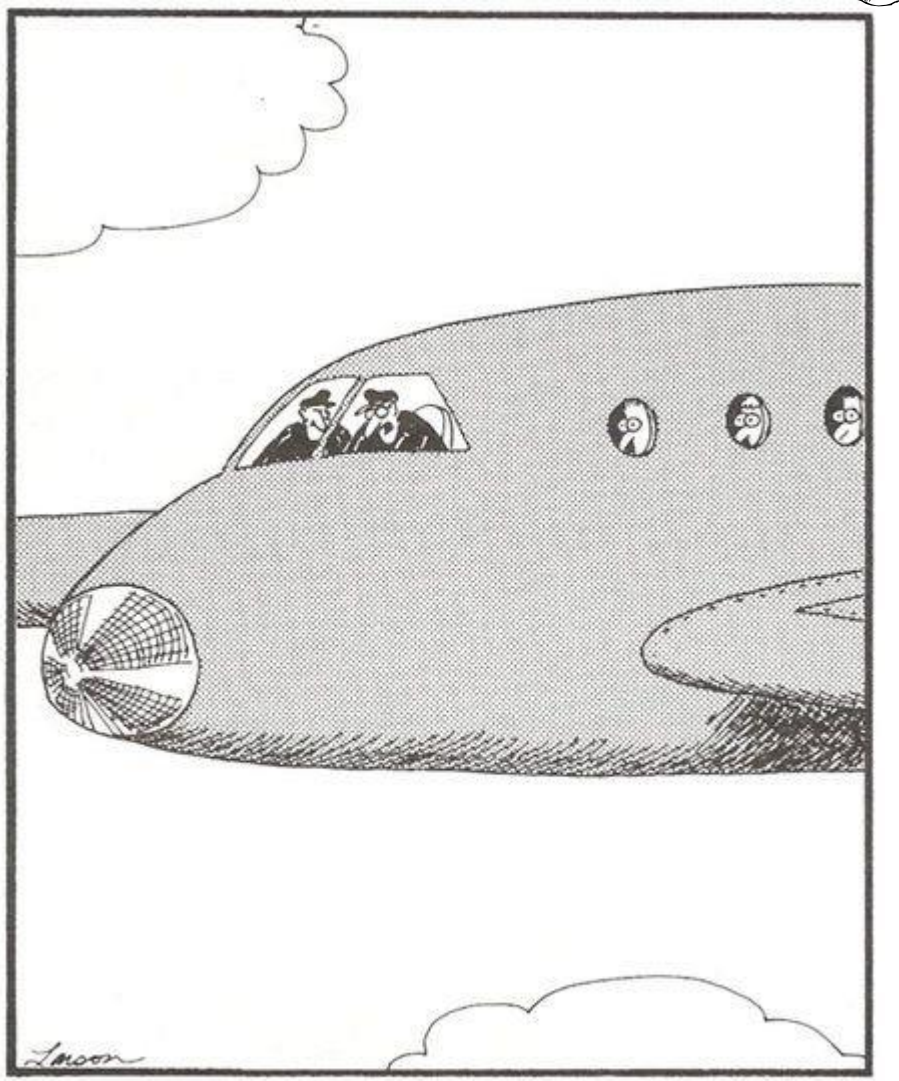
```
# cmd_example.R
# shows how to use command line arguments
doc <- "Usage: cmd_example.R [options] [--] <input_file> <output_file>

Options:
-h, --help                this help
-l LEVEL, --log LEVEL  logging level [default: INFO]
"
args <- docopt::docopt(doc)
print(args$input_file)
print(args$log)
# ...
```

```
$ Rscript my_script.R input.csv output.rds
[1] “input.csv”
[1] “INFO”
```

PREPARE FOR DISASTER

… or errors at least



"The fuel light's on, Frank! We're all going to die!... We're all going to die!... Wait, wait.... Oh, my mistake—that's the intercom light."

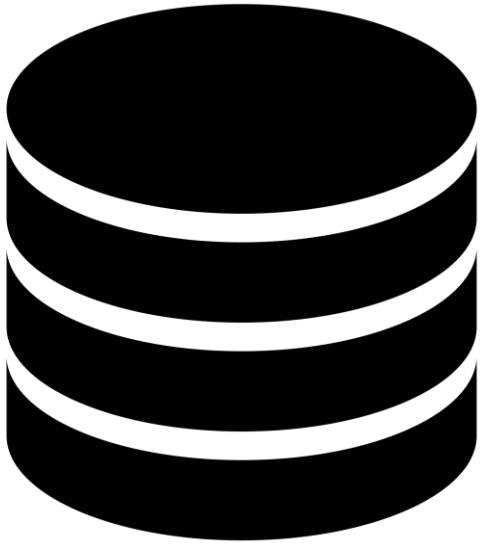
Fred Larson, Far Side

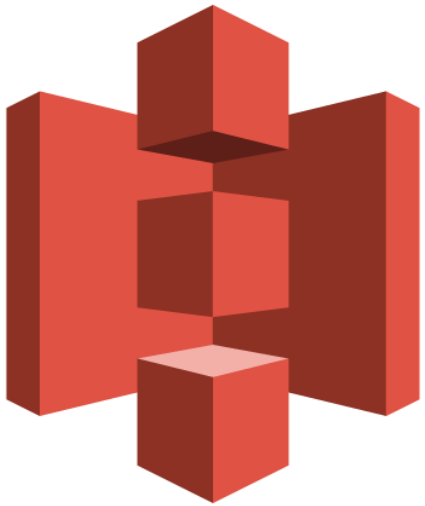
MAG-O

LOGS: YOUR FLIGHT RECORDER

MAG-O

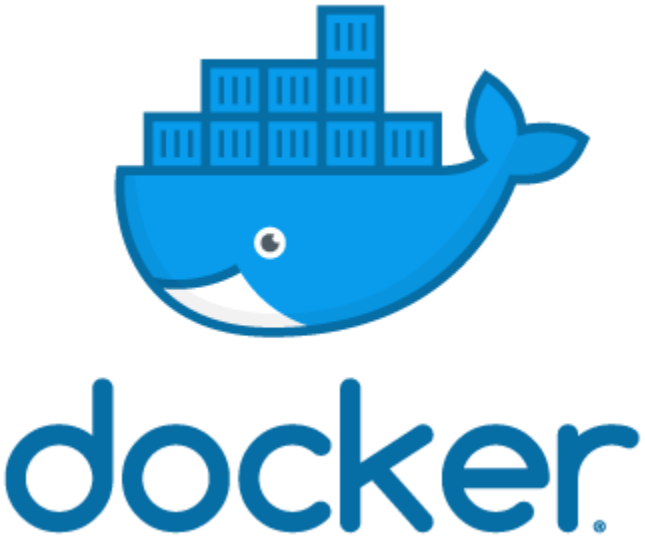
MAPS: WHERE DOES YOUR DATA LIVE?





Amazon
S3

SHIPPING CONTAINERS




```
FROM rocker/r-ver:latest

# install a package
RUN install2.r tidyverse

# copy code in
COPY . /app

# set working directory (important for R
scripts!)
WORKDIR /app
```

SCHEDULED FLIGHTS

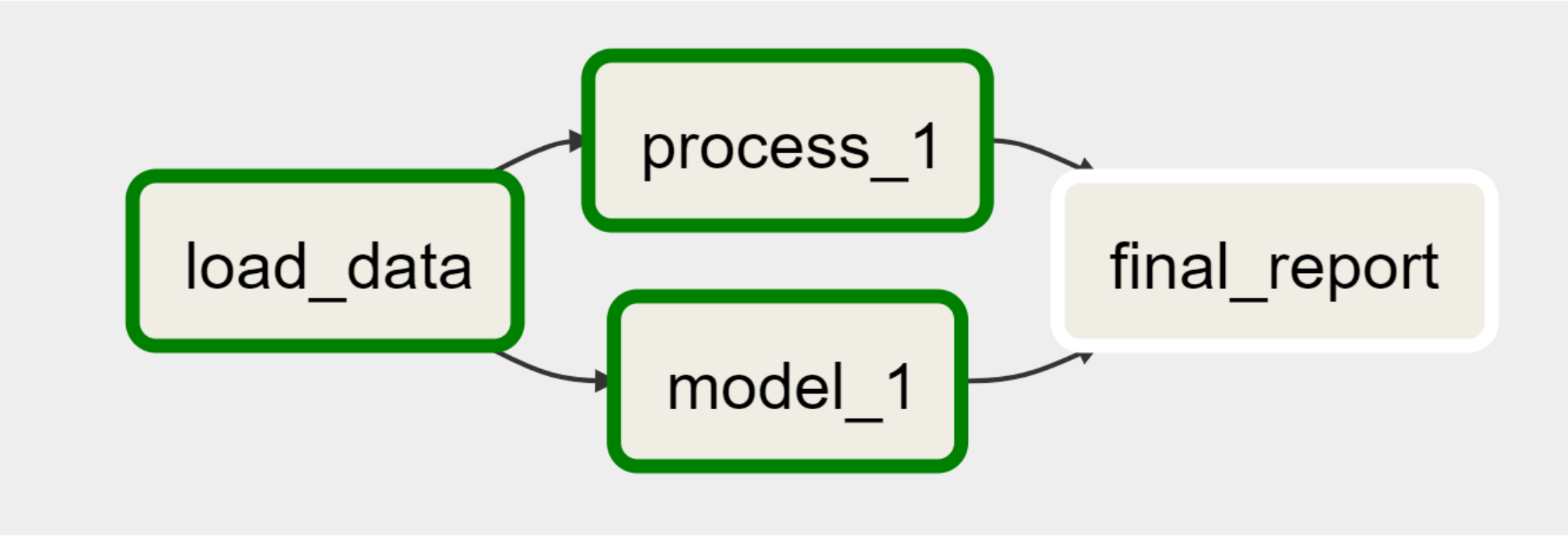
Photo by Amin Salehi on Unsplash

MAG-O

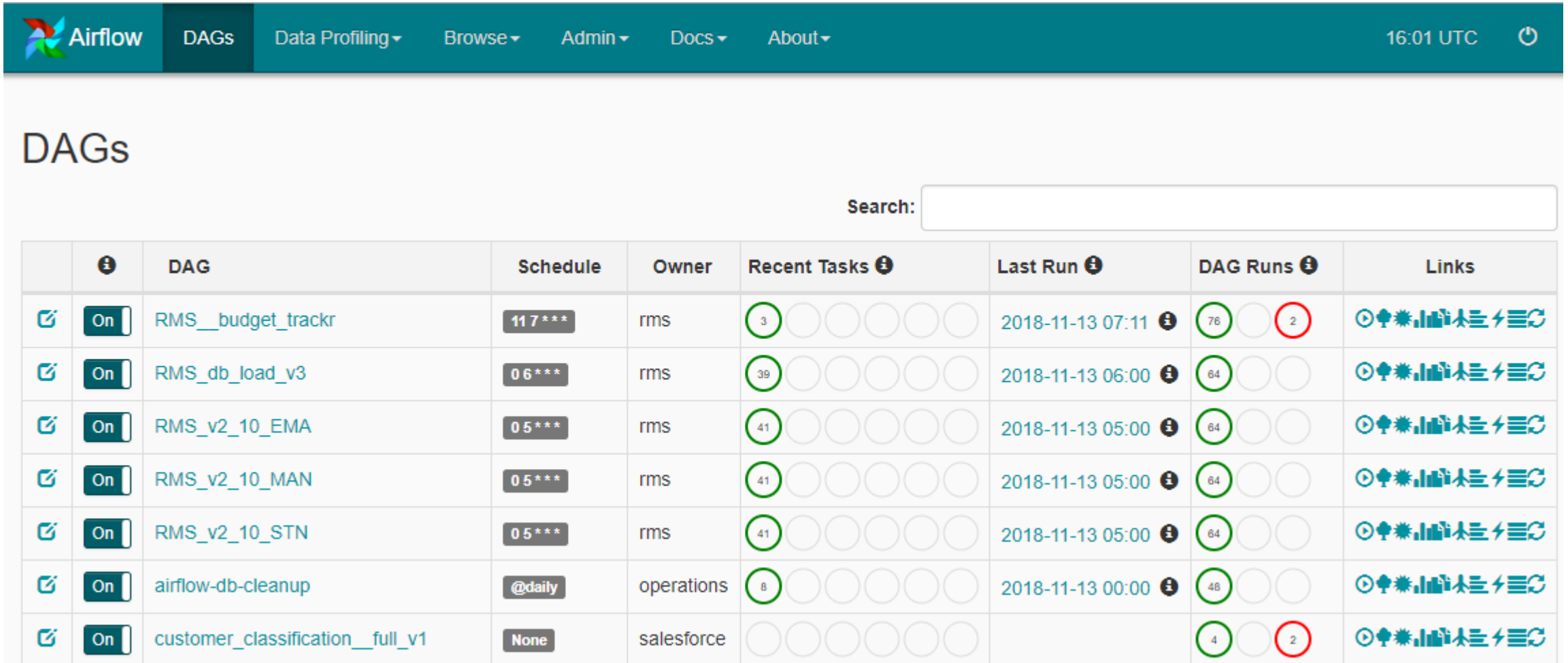
AIR TRAFFIC CONTROL WITH AIRFLOW

```
$ pip install apache-airflow
```

ROUTES...

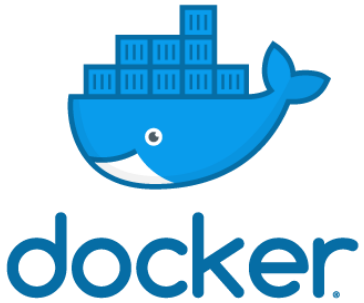


LAYOUT OF THE CONTROL TOWER



DIFFERENT PLANES (OR OPERATORS) FOR DIFFERENT JOBS

Amazon S3



WATCHING OUT FOR INCOMING DATA

Photo by Nicolas Prieto on Unsplash

BUILDING OUR OWN

```
class ROperator(BaseOperator):
    template_fields = ('script', 'arguments', 'cwd')

    @apply_defaults
    def __init__(self, script, arguments = [], cwd = None, **kwargs):
        self.script    = script
        self.arguments = arguments
        self.cwd       = cwd
        super(ROperator, self).__init__(**kwargs)

    def execute(self, context):
        r_proc = subprocess.Popen(
            ['/usr/bin/Rscript', self.script] + self.arguments,
            stdout=subprocess.PIPE, stderr=subprocess.STDOUT, close_fds=True,
            cwd=self.cwd)
        r_stdoutdata, _ = r_proc.communicate()
        self.log.info("Rscript output %s", escape_string(r_stdoutdata))

        if r_proc.returncode != 0:
            raise AirflowException("Rscript {} failed with return code {}".format(self.script, r_proc.returncode))
        return escape_string(r_stdoutdata)
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BUILDING OUR OWN

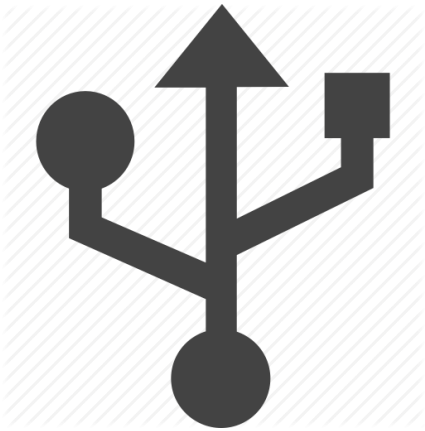
```
import subprocess
import re

from airflow.models            import BaseOperator
from airflow.utils.decorators import apply_defaults
from airflow.exceptions        import AirflowException

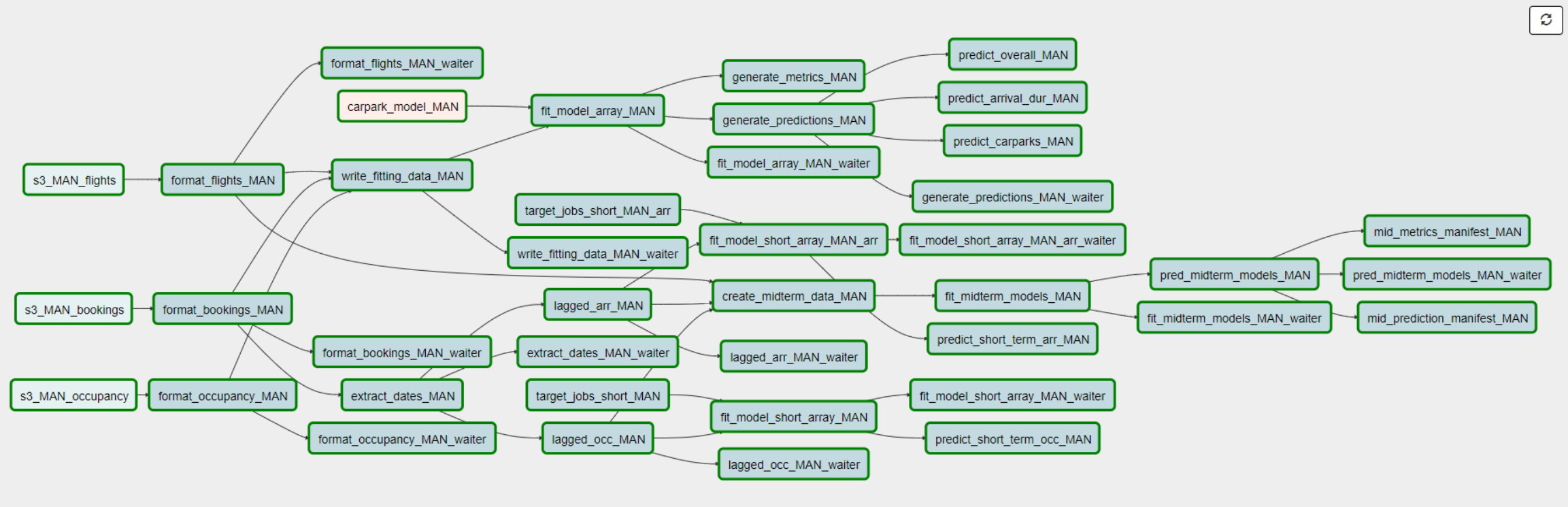
def escape_string(string):
  """escape the weird characters R sometimes outputs"""
  string = repr(string) # easy escape
  string = re.sub(r"\\n", "\n", string) # unescape new lines
  string = re.sub(r"\\t", "\t", string)
  return string

class ROperator(BaseOperator):
  # class definition ...
```

OTHER FEATURES IN THE CONTROL TOWER



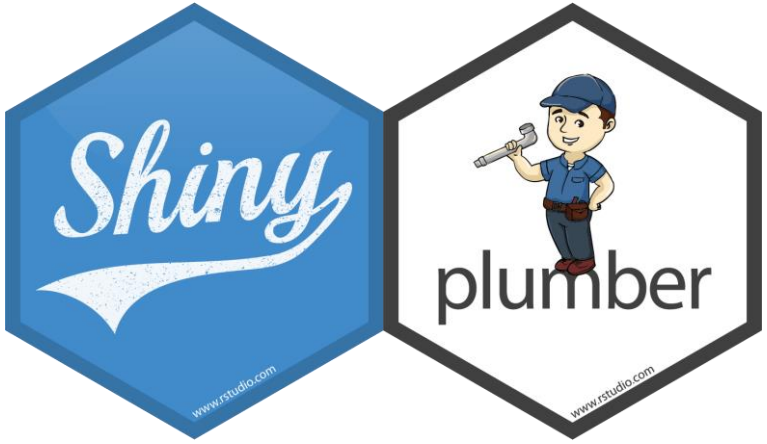
COMPLICATED ROUTES ...



EXPLORING FURTHER

Jenkins

AWS / Azure Batch



LANDING

Converting a well architected R project into production is not that hard

Apache Airflow can help you to manage complex workflows

There's a lot more out there too

THANKS!

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namelessjon

namelessjon

https://github.com/namelessjon/Preparing-your-model-for-takeoff

https://speakerdeck.com/namelessjon/preparing-your-model-for-takeoff

https://pixabay.com/en/night-flight-plane-airport-2307018/