

# Continuous/Deployment (CI/CD) for R

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#### Introduction



- Version Control in Analytics
- Continuous Integration
- Continuous Deployment

#### **Version Control**



- Version Control in Analytics?
- Benefits
- Integrate Analytics Feedback Life Cycle with SDLC
  - Software Development Life Cycle
    - Define Requirements, Design, Development, QA, UAT, Release
  - Analytics Development Life Cycle
    - Identify Problem, Data Prep, Explore, Transform, Select, Modeling,
       Validate Models, Deploy, Monitor Results

## Continuous Integration (CI)



- CI?
- Benefits

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IT WORKS on my machine

# **Continuous Deployment**



- CD?
- Testing
- Delivery

#### The workings – R/Studio



```
> library(usethis)
> prjpath <- file.path("~/gitlab/gaspdemo", "gaspdemo")
> usethis::create package("~/gitlab/gaspdemo")

√ Setting active project to 'C:/Users/Westat/gitlab/gaspdemo'

√ Creating 'R/'

√ Creating 'man/'

√ Writing 'DESCRIPTION'

√ Writing 'NAMESPACE'

√ Changing working directory to 'C:/Users/Westat/gitlab/gaspdemo'

> usethis::use roxygen md()

√ Setting Roxygen field in DESCRIPTION to 'list(markdown = TRUE)'

√ Setting RoxygenNote field in DESCRIPTION to '6.1.0'

    Run `devtools::document()`

> usethis:::edit file("DESCRIPTION")

    Modify 'DESCRIPTION'

Package: gaspdemo
Title: Package Developed For CICD Demonstration
Version: 0.0.0.9000
Authors@R:
    person(given = "Zech",
           family = "Kottilil",
           role = c("aut", "cre"),
           email = "me@anon.org")
Description: This package is developed to demonstrate the
      continuous integration and deployment from within R.
Encoding: UTF-8
LazyData: true
RoxygenNote: 6.1.0
> usethis::use r("gasp hello")
• Modify 'R/gasp hello.R'
```



### The workings - R/Studio (contd.)

```
#' Show the CI/CD functionality
#'
#' @param x The name of the Person who is being welcomed
#'
#' @return The output from \code{\link{print}}
#'
#' @export
#'
#' @examples
#' hellox("Zech")
#' \dontrun{
#' hellox("Rose")
#' }
hellox <- function(x) {
   print(paste0("Hello, ", x, "! Welcome to the world of CI/CD at GASP!"))
}</pre>
```

#### Add Unit Test

CI/CD in R 2018-10-24



### The workings - R/Studio (contd.)

#### Test the Package

#### Run a Check

```
* checking for unstated dependencies in 'tests' ... OK

* checking tests ...
Running 'testthat.R'
OK

* DONE

Status: OK

R CMD check results
0 errors | 0 warnings | 0 notes
```



### The workings – R/Studio (contd.)

Add a YAML file (.gitlab-ci.yml) for the CI to the project folder

```
test:
    script:
        - R -e 'install.packages(c("testthat"))'
        - R CMD build . --no-build-vignettes --no-manual
        - R CMD check *tar.gz --no-build-vignettes --no-manual
```

Initialize the GitLab Repository and Commit

CI/CD in R



#### The workings – R/Studio (contd.)

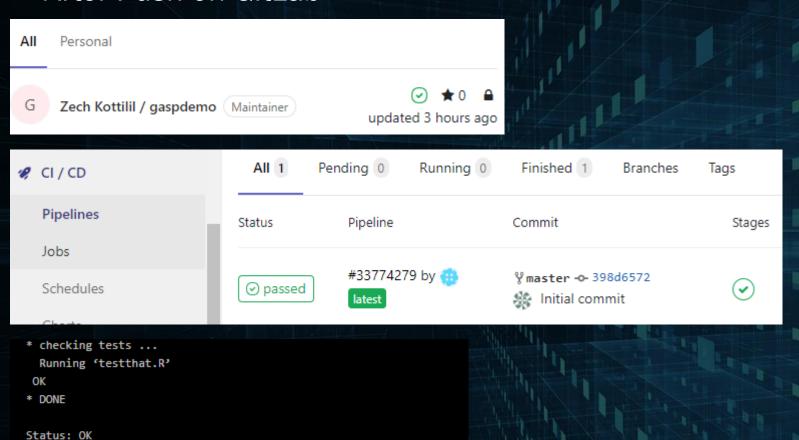
#### Push to GitHub from R/Studio.

```
C:\Users\Westat\gitlab\gaspdemo>git push --set-upstream https://gitlab.com/kottilils/gaspdemo.git master
Enumerating objects: 20, done.
Counting objects: 100% (20/20), done.
Delta compression using up to 4 threads.
Compressing objects: 100% (15/15), done.
Writing objects: 100% (20/20), 3.70 KiB | 631.00 KiB/s, done.
Total 20 (delta 0), reused 0 (delta 0)
remote:
remote: The private project kottilils/gaspdemo was successfully created.
remote:
remote: To configure the remote, run:
          git remote add origin https://gitlab.com/kottilils/gaspdemo.git
remote:
remote:
remote: To view the project, visit:
          https://gitlab.com/kottilils/gaspdemo
remote:
remote:
To https://gitlab.com/kottilils/gaspdemo.git
 * [new branch]
                    master -> master
Branch 'master' set up to track remote branch 'master' from 'https://gitlab.com/kottilils/gaspdemo.git'.
```



#### The workings - GitLab

After Push on GitLab



CI/CD in R

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Job succeeded

