

workflow_mini

July 20, 2025

ZZCOLLAB Mini Workflow Guide

Developer 1: Team Lead Project Initialization

Commands for initiating a new analysis project without building a local workspace

1. Navigate to projects directory

```
cd ~/projects # or your preferred projects directory
```

2. Initialize team project with selective base image building

Choose one approach based on team needs:

Option A: Build only shell variant (fastest - recommended for command-line teams)

```
zzcollab -i -t rgt47 -p png1 -B r-ver -S
```

Option B: Build only RStudio variant (for GUI-focused teams)

```
zzcollab -i -t rgt47 -p png1 -B rstudio -S
```

Option C: Build only verse variant (for publishing-focused teams)

```
zzcollab -i -t rgt47 -p png1 -B verse -S
```

Option D: Build all variants (traditional approach - takes longer)

```
zzcollab -i -t rgt47 -p png1 -B all -S
```

Note: Omitting -d ~/dotfiles means no local workspace is built

What This Does:

1. **Creates project directory:** png1/
2. **Sets up team Docker images:**

- Builds and pushes to Docker Hub as rgt47/png1core-shell:latest (and/or other variants)
3. **Initializes zzcollab project structure:** Complete R package with analysis framework
 4. **Creates private GitHub repository:** <https://github.com/rgt47/png1>
 5. **Sets up automated CI/CD:** GitHub Actions for team image management
 6. **Enables team collaboration:** Dev 2 and Dev 3 can join immediately

For Dev 2 and Dev 3 to Join:

1. Clone the project

```
git clone https://github.com/rgt47/png1.git
cd png1
```

2. Join with available interface (they'll get helpful errors if variant unavailable)

```
zzcollab -t rgt47 -p png1 -I shell -d ~/dotfiles      # If shell variant available
zzcollab -t rgt47 -p png1 -I rstudio -d ~/dotfiles    # If RStudio variant available
zzcollab -t rgt47 -p png1 -I verse -d ~/dotfiles     # If verse variant available
```

3. Start development

```
make docker-zsh      # or make docker-rstudio, make docker-verse
```

Key Benefits of This Approach:

- [CHECKMARK] **No local workspace for Dev 1:** Team infrastructure created without personal development setup
- [CHECKMARK] **Faster initialization:** Only builds needed variants, not all three
- [CHECKMARK] **Immediate team access:** Dev 2 & 3 can join as soon as GitHub repo is created
- [CHECKMARK] **Flexible team scaling:** Can add more variants later with `zzcollab -V rstudio`
- [CHECKMARK] **Error guidance:** Team members get helpful messages if requesting unavailable variants

If Team Needs Multiple Interfaces Later:

Developer 1 can add variants incrementally:

```
cd png1
zzcollab -V rstudio      # Add RStudio variant
zzcollab -V verse       # Add verse variant for publishing
```

This approach optimizes for **team coordination** while minimizing **setup overhead** for the team lead! [ROCKET]

Developer 2: Development Completion Workflow

When **Developer 2** finishes their development work, here's the complete workflow:

1. Final Testing & Validation (Inside Container)

```
# Still in development container (make docker-zsh)
R
# Run final tests
devtools::load_all()           # Load all package functions
devtools::test()               # Run unit tests
testthat::test_dir("tests/integration") # Run integration tests
source("scripts/my_analysis.R") # Test your analysis script
quit()
```

2. Exit Container & Validate Dependencies

```
# Exit the development container
exit

# Validate all dependencies are properly tracked
make docker-check-renv-fix    # Auto-fix any dependency issues
make docker-test              # Run all tests in clean environment
make docker-render             # Ensure reports render correctly
```

3. Git Workflow - Commit Changes

```
# Check what you've changed
git status
git diff

# Stage and commit your work
git add .
git commit -m "Add [feature description] with comprehensive tests

- [Describe what you implemented]
- [List any new packages added]
```

- [Mention test coverage]
- All tests passing and dependencies validated"

Push to your feature branch (if using feature branches - recommended)

```
git push origin feature/my-analysis
```

OR push directly to main (if using simple workflow)

```
git push origin main
```

4. Create Pull Request (Recommended Team Workflow)

Create PR for team review

```
gh pr create --title "Add [feature description]" \
  --body "## Summary
```

- [Describe your contribution]
- [List any new analysis scripts/functions]
- [Mention if new packages were added]

```
## Testing
```

- [x] All unit tests pass
- [x] Integration tests pass
- [x] Analysis scripts run without errors
- [x] Report renders successfully
- [x] Dependencies validated

```
## Impact
```

- [Describe how this affects the project]
- [Any breaking changes or requirements for other devs]"

5. What Happens Next (Automated)

When Dev 2 pushes changes:

1. GitHub Actions automatically:

- [CHECKMARK] Runs R package validation
- [CHECKMARK] Executes all tests
- [CHECKMARK] Renders analysis reports
- [CHECKMARK] **Detects if new packages were added**

2. If new packages detected:

- [CHECKMARK] **Rebuilds team Docker image** with new packages

- [CHECKMARK] **Pushes updated image** to Docker Hub (rgt47/pnglcore-*:latest)
- [CHECKMARK] **Notifies team** via commit comment with update instructions

3. Team gets notification:

[WHALE] Team Docker Image Updated

New packages detected: tidymodels, plotly

Team members: Update your environment with:

git pull

docker pull rgt47/pnglcore-shell:latest

make docker-zsh

6. Team Synchronization (Dev 1 & Dev 3)

Other team members sync automatically:

Dev 1 and Dev 3 run when they see the notification:

git pull *# Get latest code changes*

docker pull rgt47/pnglcore-shell:latest *# Get updated team environment*

make docker-zsh *# Continue development with new packages*

Alternative: Simple Direct Push Workflow

If not using pull requests:

After validation (steps 1-2 above)

git add .

git commit -m "Add my analysis with tests - all dependencies validated"

git push origin main *# Direct push triggers team image rebuild*

Key Benefits of This Workflow:

- [CHECKMARK] **Zero manual image management:** GitHub Actions handles Docker rebuilds
- [CHECKMARK] **Automatic team notification:** Everyone knows when environment updates
- [CHECKMARK] **Dependency validation:** Prevents environment drift before commit

- [CHECKMARK] **Professional quality:** Tests, validation, and documentation required
- [CHECKMARK] **Team coordination:** Clear communication about changes and impacts

Dev 2's Work is Done! [PARTY]

Once Dev 2 pushes their changes: - **Code is integrated** into the main project - **Team environment is updated** automatically

- **Other developers are notified** and can sync - **Dev 2 can start next feature** or analysis

This workflow ensures **zero-friction collaboration** while maintaining **enterprise-grade quality standards!** [ROCKET]

Developer 1: Reacting to Team Contributions & Adding Own Work

Here are the commands **Developer 1 (Team Lead)** uses to react to Dev 2 and Dev 3's additions and then add their own code:

1. Sync with Team Changes

Navigate to project directory

```
cd png1
```

Get latest code changes from team

```
git pull origin main
```

Get latest team environment (automatically updated by GitHub Actions)

```
docker pull rgt47/png1core-shell:latest # or whatever variant you use
```

Check what changed

```
git log --oneline -10
```

See recent commits

```
git diff HEAD~3
```

See changes since 3 commits ago

2. Review Team Contributions (Optional)

Review specific team member changes

```
git log --author="dev2" --oneline -5
```

See Dev 2's recent commits

```
git log --author="dev3" --oneline -5
```

See Dev 3's recent commits

```

# Look at specific files that changed
git show HEAD~1                                # Show last commit details
git diff HEAD~2..HEAD scripts/                 # See script changes
git diff HEAD~2..HEAD R/                       # See function changes

```

3. Start Development Environment with Updated Team Packages

```

# Enter updated development environment
make docker-zsh                                # All team packages now available

# Verify environment is up to date
R
installed.packages()[,1]                       # Check available packages
devtools::load_all()                          # Load all team functions
devtools::test()                              # Run all tests to ensure compatibility
quit()

```

4. Explore Team's New Code (Inside Container)

```

# Review what Dev 2 and Dev 3 added
ls scripts/                                    # See new analysis scripts
ls R/                                           # See new functions
ls tests/                                       # See new tests

# Test their analysis scripts
R
source("scripts/dev2_analysis.R")              # Run Dev 2's analysis
source("scripts/dev3_visualization.R")        # Run Dev 3's work
# Understand their approach and results
quit()

```

5. Create Feature Branch for Own Work

```

# Create branch for your new work
git checkout -b feature/dev1-integration

# OR work directly on main (simpler workflow)
# git checkout main

```

6. Add Your Own Code (Inside Container)

```
# Still in development container
vim scripts/04_advanced_modeling.R           # Create your analysis

# Example: Build on team's work
vim R/integration_functions.R                # Add functions that use team's work

# Write tests for your additions
vim tests/testthat/test-integration_functions.R
vim tests/integration/test-04_advanced_modeling.R

# Test your new code
R
devtools::load_all()                        # Load all functions (yours + team's)
source("scripts/04_advanced_modeling.R")    # Test your script
devtools::test()                           # Run all tests
quit()
```

7. Exit Container & Validate Complete Integration

```
# Exit development container
exit

# Validate entire project works together
make docker-check-renv-fix                 # Ensure dependencies are tracked
make docker-test                           # Run all tests (team's + yours)
make docker-render                         # Ensure reports still render

# Test end-to-end workflow
make docker-zsh

R
# Run complete analysis pipeline
source("scripts/01_data_import.R")         # Original work
source("scripts/dev2_analysis.R")          # Dev 2's contribution
source("scripts/dev3_visualization.R")     # Dev 3's contribution
source("scripts/04_advanced_modeling.R")   # Your new integration
quit()
exit
```


8. Commit Your Integration Work

Check what you've added

```
git status
```

```
git diff
```

Commit your work

```
git add .
```

```
git commit -m "Add advanced modeling integration building on team contributions"
```

- Integrate Dev 2's analysis patterns with advanced modeling
- Extend Dev 3's visualization framework for model results
- Add comprehensive integration tests for complete pipeline
- All team code compatibility maintained and tested"

Push to feature branch

```
git push origin feature/dev1-integration
```

OR push directly to main

git push origin main

9. Create Pull Request for Team Review

Create PR for team feedback

```
gh pr create --title "Add advanced modeling integration" \  
  --body "## Summary"
```

- Built advanced modeling on top of Dev 2's analysis framework
- Extended Dev 3's visualization tools for model interpretation
- Added comprehensive integration testing

```
## Integration Testing
```

- [x] All existing team code runs without modification
- [x] New code integrates seamlessly with team contributions
- [x] Complete analysis pipeline tested end-to-end
- [x] All dependencies validated

```
## Team Impact
```

- Enhances existing analysis without breaking changes
- Provides advanced modeling capabilities for future work
- Maintains all existing functionality"

10. Alternative: Quick Integration (Direct Push)

```
# For simple additions, skip PR process
git add .
git commit -m "Add modeling integration - builds on team's excellent foundation"
git push origin main # Triggers automatic team image rebuild
```

Key Benefits of This Workflow:

- [CHECKMARK] **Seamless integration:** Dev 1 builds on team work without conflicts
- [CHECKMARK] **Automatic environment sync:** GitHub Actions handled package updates
- [CHECKMARK] **Code compatibility:** Testing ensures nothing breaks
- [CHECKMARK] **Team coordination:** PR process enables feedback and discussion
- [CHECKMARK] **Professional quality:** Integration testing validates entire pipeline

What Happens Next:

1. GitHub Actions automatically:

- [CHECKMARK] Tests complete integration (all team code + Dev 1's additions)
- [CHECKMARK] Rebuilds team image if new packages added
- [CHECKMARK] Notifies team of updated environment

2. Team members sync:

```
git pull # Get Dev 1's integration work
docker pull rgt47/pnglcore-shell:latest # Get any env updates
make docker-zsh # Continue with enhanced codebase
```

This workflow ensures **Dev 1 can lead and integrate** while **building on the team's excellent contributions!** [ROCKET]