



Porting LuaRocks to Teal

Take the Benefits of Statically Typed Code in Lua


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 Google Summer of Code

 The Benefits of the Migration:

 Planning vs Reality

 Tackling the Problem:

 Development Workflow:

 Bringing Everything Together:



Why join Google Summer of Code and the awesome folks from LabLua

What is GSOC?

The Idea

My take



The Benefits of the Migration:

LuaRocks:

Cleaner

More understandable

More maintainable

Teal:

A new version with many improvements and fixes



Example:

```
local function store_package_items(storage, name, version,
items)
  assert(not name:match("/"))

  local package_identifier = name .. "/" .. version

  for item_name, _ in pairs(items) do
    if not storage[item_name] then
      storage[item_name] = {}
    end

    table.insert(storage[item_name], package_identifier)
  end
end
```

```
local function store_package_items(storage: {string:
{string}}, name: string, version: string, items: {string: string})
  assert(not name:match("/"))

  local package_identifier = name.."/"..version

  for item_name, _ in pairs(items) do
    if not storage[item_name] then
      storage[item_name] = {}
    end

    table.insert(storage[item_name], package_identifier)
  end
end
```

Planning vs Reality: (How to Handle the Unexpected)

- **Week 1 (27 May - 2 June):**
 - **Study and Try out possible approaches:** (3 hours per day during my final semester, Total: 15 hours per week)
 - Due to the size of the Lua Rocks repository, the first step should be in-depth research into the fastest and
 - Analyzing the Lua Rocks repository structure and dependencies.
 - Begin setting up the development environment for Teal.
- **Week 2 (3 June - 9 June):**
 - **Initial Conversion Process:** (3 hours per day during my final semester, Total: 15 hours per week)
 - Identify key modules or files for initial conversion.
 - Prioritize them based on their complexity and dependencies.
 - Convert the first batch of modules.
 - Ensure all tests are passing and update or add as necessary.
 - Document any issues encountered during the conversion process.
 - Add the integration of the Teal compiler into the LuaRocks CI
 - Prepare the first PR.
- **Week 3 (10 June - 16 June):**
 - **Finalize the conversion approach:** (3 hours per day during my final semester, Total: 15 hours per week)
 - Reflect on whether this is going to be the final approach.
 - Address any bugs or issues identified and agree with the mentor on the path forward.
 - (Optional) Propose an alternative approach if the original approach proves inefficient.
 - Aim to complete the final PR for the chosen approach if accepted.
- **Week 4 (17 June - 23 June):**
 - **Next batch conversion:** (3 hours per day during my final semester, Total: 15 hours per week)
 - Iterate the conversion of the remaining batches (using either the new or the old approach)
 - Ensure all tests are passing and update or add as necessary.
 - Document any issues encountered during the conversion process.
 - Prepare the PR per batch for review and start working on the next batch
- **Week 5 (24 June - 30 June):**
 - **Next batch conversion:** (3 hours per day during my final semester, Total: 15 hours per week)
 - Same as week 4 (Completion Target: 20%)
- **Week 6 (01 July - 07 July):**

- **Next batch conversion:** (8 hours per day, Total: 40 hours per week)
 - Same as week 4 (Completion Target: 80%)
- **Week 7 (08 July - 14 July):**
 - **Next batch conversion:** (8 hours per day, Total: 40 hours per week)
 - Same as week 4 (Completion Target: 100%)
 - Midterm evaluation
- **Week 8 (15 July - 21 July):**
 - **Vacation week:** (16 hours during vacation)
 - Vacation week
- **Week 9 (22 July - 28 July):**
 - **Release week:** (8 hours per day, Total: 40 hours per week)
 - Prepare the new Teal version as Candidate release.
 - Prepare necessary release documentation and announcement and finalize with the mentor the release pro
- **Week 10 (29 July - 11 August):**
 - **Post Release:** (8 hours per day, Total: 40 hours per week)
 - Buffer week for unexpected delays.
 - Address any post-release issues.
- **Week 11 (12 August - 18 August):**
 - **Wrap up:** (8 hours per day, Total: 40 hours per week)
 - Prepare for the final evaluation
 - Review with the mentor any final items before wrapping up the project.
 - Address any last-minute changes or improvements.
- **Week 12 (Last Week) (19 August):**
 - **Finalize the review:**



Tackling the Problem:

Dependency graph: Root to leafs

Exceptions

- External

- Files not in the scope of the project

- Cyclic

Challenging parts



Development Workflow:

Testing

GitHub Actions

Local

Branching

Incremental Releases

One big release



Bringing Everything Together:

New clean branch

New version of Teal

Merge!



Related Links

- ★ [LuaRocks Official Website - https://luarocks.org](https://luarocks.org)
- ★ [Teal Language - https://github.com/teal-language/tl](https://github.com/teal-language/tl)
- ★ [The Google Summer of Code 2024 Proposal - https://summerofcode.withgoogle.com/programs/2024/projects/jgtBpFe8](https://summerofcode.withgoogle.com/programs/2024/projects/jgtBpFe8)
- ★ [LuaRocks Blog on GSOC 2024 - http://www.lua.inf.puc-rio.br/gsoc/blog2024.html](http://www.lua.inf.puc-rio.br/gsoc/blog2024.html)
- ★ [The Final Pull Request - https://github.com/luarocks/luarocks/pull/1705](https://github.com/luarocks/luarocks/pull/1705)



Thank You

GitHub

<https://github.com/V1K1NGbg>



LinkedIn

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