



prismAld User Manual

Riccardo Boero

`ribo@nilu.no`

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Foreword

The `prismAId` user manual is designed to help researchers, academics, and professionals leverage the power of `prismAId` for conducting systematic reviews efficiently. This document provides a structured approach to installing, configuring, and using `prismAId`, ensuring that users can quickly get started while also exploring advanced features when needed.

This manual is divided into five distinct parts, each catering to different user needs:

- **Part 1: Introduction** – If you are new to `prismAId`, we recommend starting with the chapter **Introduction to prismAId**. This section explains what `prismAId` is, who can benefit from it, and why it is a valuable tool for systematic reviews.
- **Part 2: Getting Started** – If you need to install and configure `prismAId`, go directly to **Installation & Setup**. This section provides step-by-step installation instructions for Windows, Mac, and Linux. Once installed, **Configuring prismAId** explains how to customize settings and prepare your environment for use.
- **Part 3: Conducting a Systematic Review** – If your primary goal is to **learn how to conduct a systematic review with prismAId**, you can skip the installation and configuration sections and go directly to the chapter **Step-by-Step Guide to Conducting a Systematic Review**. This section provides a hands-on walkthrough of:
 - Setting up a project
 - Importing and managing data
 - Running analyses
 - Interpreting results
 - Exporting findings

Before diving into this walkthrough, you may find it helpful to read **Understanding Systematic Reviews**, which provides

Reminder: No coding skills are required to effectively conduct a systematic review with `prismAId`.

Tip: The many open science advantages of `prismAId` are introduced and discussed in the **Introduction**.

Note: `prismAId` is available on all platforms and operating systems. It can also be integrated programmatically with the most widely used scientific software.

Tip: For a quick but complete walkthrough on using `prismAId` in a systematic review, see the **fifth** chapter.

background information on the methodology and best practices.

- **Part 4: Advanced Features** – Users who want to explore advanced capabilities can refer to the chapters **Customization and Automation** and **Extending prismAId**. These sections cover automation, advanced filtering, and integration with external tools.
- **Part 5: Troubleshooting & FAQs** – If you encounter issues, visit **Troubleshooting Common Issues**, which provides solutions to common errors, and **Frequently Asked Questions**, which addresses common concerns.

How Should You Use This Manual?

- If you are **new to prismAId**, start with **Introduction**, then proceed to **Installation**.
- If you **want to conduct a systematic review**, go directly to **Part 3**, particularly **Step-by-Step Guide to Conducting a Systematic Review**, for a detailed walkthrough.
- If you need **advanced features or troubleshooting**, refer to **Parts 4 and 5** as needed.

Throughout this manual, useful commands are presented in blue boxes, as shown below:

Command: Example of a Binary Command

To start the program, run:

```
# For Windows
./prismAId_windows_amd64.exe -project your_project.toml
```

Tool configuration details are highlighted in red boxes, as shown below:

Configuration: Example of a TOML Setting

To configure the LLM temperature setting, edit:

```
# Sample TOML configuration
[project.llm.1]
provider = "OpenAI"
model = ""
temperature = 0.2
```

Final Notes

We hope this manual serves as a comprehensive guide to making the most of `prismAId`. Whether you're a first-time user or an advanced researcher, this document is structured to help you get the information you need quickly and efficiently.

For any additional questions, please refer to **the FAQ section** or contact our support team. Happy reviewing!

Warning: The online documentation of `prismAId` is available at open-and-sustainable.github.io/prismaid/.

Part I

Introduction

Introduction to prismAId

Systematic reviews are at the core of evidence-based research. They help synthesize vast amounts of literature, ensuring that decisions in science, medicine, policy, and other fields are grounded in the best available evidence. However, conducting systematic reviews is a time-intensive and often overwhelming process. Screening literature, managing citations, extracting data, and ensuring methodological rigor all demand meticulous attention to detail.

`prismAId` was created to address these challenges. It is an open-source tool designed to assist researchers in managing systematic reviews more efficiently. By streamlining key aspects of the review process, `prismAId` helps users maintain high standards of rigor and reproducibility while reducing the manual workload.

The tool is aimed at a diverse range of users, from researchers conducting large-scale systematic reviews to students working on literature-based projects. It provides structured workflows that align with best practices in systematic reviewing, ensuring that every step—from defining inclusion criteria to extracting and analyzing data—is traceable and transparent.

One of the key motivations behind `prismAId` is its commitment to Open Science. The tool is fully open source, meaning its development is transparent, and researchers can inspect, modify, and contribute to its functionality. This openness ensures that systematic reviews conducted with `prismAId` can be fully reproducible and that researchers can collaborate effectively without relying on proprietary or closed software ecosystems.

Moreover, the open-source nature of `prismAId` allows for continuous improvement through community-driven development. Users can adapt the tool to fit their needs, extend its capabilities, and integrate it with other research software. This flexibility is particularly beneficial in a rapidly evolving scientific landscape where reproducibility and adaptability are crucial.

Beyond technical efficiency, `prismAId` embodies key guiding principles that impact its users:

Tip: Systematic reviews require structured workflows. `prismAId` provides tools to help enforce best practices.

Note: Open-source software allows full transparency. You can verify how `prismAId` processes data at any time.

Warning: As an open-source tool, `prismAId` does not include proprietary support. Users are encouraged to engage with the community for troubleshooting and development.

- **Transparency:** The logic behind how studies are managed and processed is open for review. There are no hidden decision-making mechanisms.
- **Reproducibility:** Every action taken within `prismAId` can be logged and traced, allowing others to replicate results.
- **Flexibility:** Researchers can configure `prismAId` to meet the specific requirements of their systematic review protocols.
- **No Vendor Lock-in:** Users are not dependent on a single commercial provider, ensuring that research workflows remain independent.
- **Community and Collaboration:** As an open-source tool, `prismAId` fosters collaboration among researchers, developers, and systematic review specialists.

By embracing these principles, `prismAId` is more than just a tool—it is part of a broader effort to improve the accessibility, efficiency, and reliability of systematic reviews. Whether used by a lone researcher or a large team, it provides the structure and support needed to navigate complex literature and synthesize high-quality evidence.

As we move through this manual, you will learn how to install, configure, and effectively use `prismAId` to conduct systematic reviews. From getting started with basic setup to leveraging advanced features for more complex reviews, this guide will provide all the necessary information to integrate `prismAId` into your research workflow.

Reminder: Collaboration is a core feature. Consider contributing to `prismAId` if you have ideas for improvement!

Note: This manual follows a structured approach. Refer to the **How Should You Use This Manual?** section in the Foreword for guidance on navigating the content.

Part II

Getting Started

Installation & Setup

This chapter explains how to install `prismAId`, covering system requirements, installation steps, and first-time setup.

System Requirements

Before installing `prismAId`, ensure your system meets the following requirements:

- **Operating System:** Windows 10 or later, macOS 11 or later, or a Linux distribution (Ubuntu 20.04+, Fedora, Arch, etc.).
- **Processor:** 64-bit CPU (Intel, AMD, or ARM64).
- **Memory:** At least 4GB RAM (8GB recommended).
- **Storage:** Minimum 500MB of free disk space.

Warning: Ensure that you have administrative privileges on your system before installing `prismAId`, especially on Windows and macOS.

Installation Instructions

`prismAId` can be installed as a standalone executable for direct use.

Installing the CLI Executable

Download the appropriate binary for your operating system from the page of releases in the official repository.

Windows

Command: Running `prismAId` on Windows

After downloading, navigate to the folder and run:

```
# Run the program
./prismAId_windows_amd64.exe -project your_project.toml
```

Reminder: On Windows, you may need to allow execution if prompted by security settings.

macOS

Command: Running prismAId on macOS

After downloading, give execution permissions and run:

```
chmod +x prismAId_mac_amd64
./prismAId_mac_amd64 -project your_project.toml
```

Warning: You may need to approve the application in **System Preferences** under **Security & Privacy** before running it.

Linux

Command: Running prismAId on Linux

```
chmod +x prismAId_linux_amd64
./prismAId_linux_amd64 -project your_project.toml
```

Tip: If you receive a "Permission denied" error, try running `chmod +x` again or executing with `sudo`.

First-Time Setup

After installation, create a new project configuration.

Command: Creating a New Project

Run the following command:

```
./prismAId_windows_amd64.exe -init
```

This prompts the user multiple questions and generates a configuration file.

Reminder: Always keep a backup of your configuration file before making major modifications.

Configuration: Example of Initial Sections of a Configuration

To configure prismAId, edit the generated `your_project.toml` file:

```
[project]
name = "Use of LLM for systematic review"
author = "John Doe"
version = "1.0"

[project.configuration]
input_directory = "/path/to/txt/files"
input_conversion = ""
results_file_name = "/path/to/save/results"
output_format = "json"
log_level = "low"
duplication = "no"
cot_justification = "no"
summary = "no"
```


Verifying the Installation

Check if `prismAId` is correctly installed:

Command: Verifying Installation

```
./prismAId_windows_amd64.exe --version
```

Note: If you encounter issues, refer to the troubleshooting section or seek help from the community.

Conclusion

You have now installed `prismAId` and completed the first-time setup. The next chapter will guide you through configuring your project.

Configuring prismAId

prismAId requires a configuration file to define project settings, data sources, and review parameters. This chapter explains how to initialize, modify, and understand the configuration file.

Initializing a Configuration File

Users can create a configuration file in two ways:

Terminal-Based Initialization

From the command line, run:

Command: Initialize a new configuration file

```
./prismAId_windows_amd64.exe -init
```

This interactively generates a '.toml' configuration file based on user preferences.

Reminder: A configuration template is also provided in the repository for reference.

Web-Based Initialization

prismAId provides a web-based interface to generate configuration files. Navigate to the a browser-based interface at open-and-sustainable.github.io/prismaid/review-configurator.html, fill in the details interactively, and download or copy the configuration file generated.

Understanding the Configuration File

The configuration file is structured into sections, each controlling different aspects of prismAId. Below is a breakdown of its components.

Project Information

Configuration: Project Metadata

```
[project]
name = "Use of LLM for systematic review"
author = "John Doe"
version = "1.0"
```

Entries:

- name – Title of the project.
- author – Name of the person managing the review.
- version – Configuration file version.

Project Configuration

Configuration: General Settings

```
[project.configuration]
input_directory = "/path/to/txt/files"
input_conversion = "pdf,docx"
results_file_name = "/path/to/save/results"
output_format = "json"
log_level = "low"
duplication = "no"
cot_justification = "no"
summary = "no"
```

Entries:

- input_directory – Path to manuscript files for review.
- input_conversion – File types to be converted ('pdf', 'docx', etc.).
- results_file_name – Path for storing output files.
- output_format – Format for results ('csv' or 'json').
- log_level – Logging level ('low', 'medium', 'high').
- duplication – Whether to duplicate manuscripts for debugging ('yes' or 'no').
- cot_justification – Whether to store model justification ('yes' or 'no').
- summary – Whether to generate summaries ('yes' or 'no').

Zotero Integration (Optional)

Configuration: Zotero Settings

```
[project.zotero]
user = ""
api_key = ""
group = ""
```

Entries:

- user – Zotero user ID.
- api_key – API key for accessing Zotero.
- group – Collection or group name in Zotero.

LLM Model Configuration

prismAId supports multiple LLM providers.

Configuration: LLM Settings

```
[project.llm.1]
provider = "OpenAI"
api_key = ""
model = "gpt-4o-mini"
temperature = 0.01
tpm_limit = 0
rpm_limit = 0
```

Entries:

- provider – LLM provider ('OpenAI', 'GoogleAI', 'Cohere', or 'Anthropic').
- api_key – API key for authentication.
- model – Model name (varies by provider).
- temperature – Controls randomness ('0-1', or '0-2' for GoogleAI).
- tpm_limit – Tokens per minute limit ('0' for no limit).
- rpm_limit – Requests per minute limit ('0' for no limit).

Prompt Configuration

Configuration: Prompt Structure

```
[prompt]
persona = "You are an experienced scientist..."
task = "You are asked to map concepts in a paper."
expected_result = "Output a JSON object with..."
definitions = "'Interest rate' is defined as..."
example = ""
failsafe = "If concepts are unclear, return ''"
```

Entries:

- `persona` – Role the model should assume.
- `task` – Description of the model's job.
- `expected_result` – Defines expected output structure.
- `definitions` – Key concept definitions.
- `example` – Example cases (optional).
- `failsafe` – How the model should handle uncertainty.

Review Structure

Configuration: Review Key-Value Structure

```
[review.1]
key = "interest rate"
values = [""]
[review.2]
key = "regression models"
values = ["yes", "no"]
```

Entries:

- `key` – Topic being analyzed.
- `values` – Possible values for each key.

Conclusion

The configuration file defines every aspect of a `prismAId` project. Users have no need to define or modify anything else.

Users can modify settings manually starting from the provided template, or use the web configurator or the terminal-based one for an interactive setup.

Part III

Conducting a Systematic Review

Understanding Systematic Reviews

- What is a systematic review? - Key concepts & methodology - Best practices

Step-by-Step Guide to Conducting a Systematic Review

- Setting up a project - Importing and managing data - Running analyses - Interpreting results - Exporting findings

Part IV

Advanced Features

Customization and Automation

- Customizing settings - Using automation - Advanced filtering

Extending prismAId

- Integrating with other tools - Writing custom scripts

Part V

Troubleshooting & FAQs

Troubleshooting Common Issues

- Installation problems - Configuration errors - Common fixes

Frequently Asked Questions

- Can I use prismAId with [X] software? - How to optimize performance?