



Rainfall Logger App

USER DOCUMENTATION

(For end-users, non-technical, clear and practical)

The screenshot shows the Rainfall Logger App interface. At the top, there's a title bar with the app name and standard window controls. Below the title bar, there are input fields for 'Date' (set to 2026-02-19), 'Rain_mm (user)', and 'BOM_mm'. There are buttons for 'Add / Update' and 'Delete Selected'. A 'Notes' field is also present. Below these, there's a checkbox for 'Watered today'. The main part of the interface is a table with columns: Date, Rain_mm, BOM_mm, Effective_mm, Moisture, Notes, and Watered. The table contains data for dates from 2026-02-05 to 2026-02-19. The 'Watered' column has values 'No' or 'Yes'. Below the table, there's a 'Dashboard' section with various metrics: 'Period (days)' set to 5, 'Threshold (mm)' set to 10.0, 'Moisture balance: 4.2 mm', 'Watering Needed?: No watering needed' (in a green box), 'Last watering date: 2026-02-09', 'Last rainfall date: 2026-02-17', 'Days since last rain: 2', and 'Missing days: No missing days'. At the bottom of the dashboard, there are three colored boxes: green for 'Watered', blue for 'Rain > 0 mm', and orange for 'Rain = 0 mm'.

Date	Rain_mm	BOM_mm	Effective_mm	Moisture	Notes	Watered
2026-02-05		0	0.0	8.57		No
2026-02-06		0	0.0	7.14		No
2026-02-07		0	0.0	5.71		No
2026-02-08		0	0.0	4.29		No
2026-02-09		0	0.0	10.00		Yes
2026-02-10		0	0.0	8.00		No
2026-02-11		19.6	19.6	10.00		No
2026-02-12		0.2	0.2	8.20		No
2026-02-13		3.2	3.2	9.40		No
2026-02-14		11.2	11.2	10.00		No
2026-02-15		4	4.0	10.00		No
2026-02-16		13.2	13.2	10.00		No
2026-02-17		0.2	0.2	8.20	Start of Lucille St Gauge observations #	No
2026-02-18	0	0	0.0	6.20	#1	No
2026-02-19	0	0	0.0	4.20	#2	No

Dashboard:

Period (days): 5 Threshold (mm): 10.0

Moisture balance: 4.2 mm Watering Needed?: No watering needed

Last watering date: 2026-02-09

Last rainfall date: 2026-02-17 Days since last rain: 2

Missing days: No missing days

Watered Rain > 0 mm Rain = 0 mm

App designed by Wayne Freestun and implemented with Microsoft's Copilot assistance on Thursday, 19 February 2026

What RainApp Does

RainApp helps you track:

- Daily rainfall
- Watering events
- Notes
- Soil moisture balance

The app uses a simple, explainable moisture model based on your chosen **Threshold (mm)** and **Period (days)**. It stores a **Moisture** value for every day, allowing you to verify calculations and maintain a complete moisture history.

How Moisture Is Calculated

Moisture is a **stored value**, not recalculated every time.

Each day's moisture is computed using:

- Yesterday's stored moisture
- Today's rainfall
- Today's watering flag
- Your current Threshold and Period settings

The formula:

- $\text{Daily decay} = \text{Threshold} \div \text{Period}$
- $\text{Moisture} = \max(0, \text{yesterday's moisture} - \text{decay})$
- Rainfall adds to moisture
- Moisture is capped at Threshold
- Watering resets moisture to Threshold

This creates a realistic, stable moisture curve.

Viewing Moisture in the Table

The table now includes a **Moisture** column.

It is **read-only**

It shows the moisture value stored for that day

It allows you to verify the model's behaviour

Editing Past Records

When you edit a past record:

1. The selected day's moisture is recalculated
2. All **future** days are recalculated forward
3. Past days remain unchanged

This preserves historical accuracy while allowing corrections.

Changing Threshold or Period

Changing settings does **not** rewrite history.

Instead:

- The new settings apply **only to the selected row**
- When you click **Add/Update**, moisture is recalculated from that day forward
- All earlier days remain unchanged

This allows you to fix incorrect settings used in the past.

Deleting Records

When you delete a record:

- The record is removed
 - Moisture is **not** automatically recalculated
 - If needed, edit the previous day and click **Add/Update** to recompute forward
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Missing Days

The app detects gaps in the date sequence and allows you to view missing dates.

Migration Requirement

If you are upgrading from an older version of RainApp:

- Run the included **migration script** once
 - It adds the Moisture column and computes historical moisture values
 - No manual editing of the CSV is required
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End