

Real User Monitoring (RUM)

Information Architecture and Web Usability 2024

Group 4

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Terminology 1

DEM

Digital Experience Monitoring
[Umbrella term for RUM & Synthetic Monitoring]

RUM

Real User Monitoring [Real User Interactions]

Synthetic Measurement

Computer generated [e.g. Selenium^[1]]

Active Measurement

Controlled experiment [A/B testing]

Passive Measurement

Based on observation

[1] Selenium: <https://www.selenium.dev/>

Terminology 2

APM Application Performance Monitoring [Core Web Vitals^[1]]

CSAT Customer Satisfaction [Questionnaires and/or Custom Metrics]

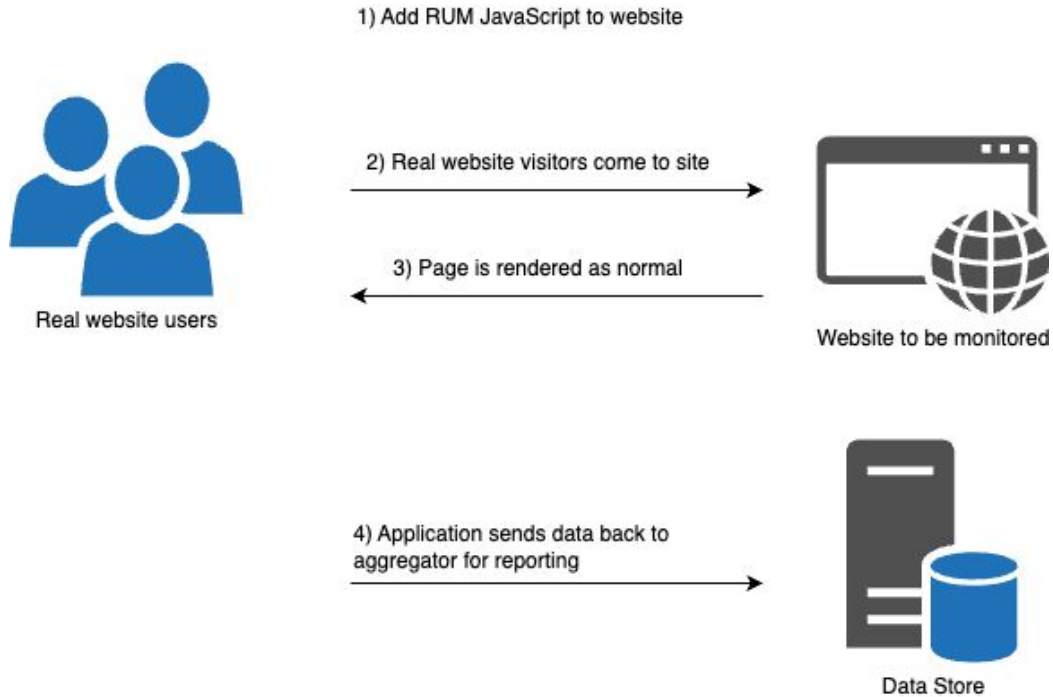
Measurement ↔ Monitor both used in literature, synonyms

[1] Understanding Core Web Vitals and Google search results: <https://developers.google.com/search/docs/appearance/core-web-vitals>

Definition: Real User Monitoring (RUM)

- Part of **DEM**.
- Active/Passive **measurements** from end-users.
- In contrast to **synthetic monitoring**.
- Records **real interactions** from **real users**.
- *“RUM is a type of measurement that is taken of something after an actual user visits a page. These are to be contrasted with synthetic measurements.”* [1]

Typical Flow of Real User Monitoring (RUM)



Clarity Live Demo

Advantages of Real User Monitoring (RUM)

- Measurements gives a more accurate measurements (latency).^[1]
- Measurements are taken from client perspective (point of consumption).^[1]
- Enables **real time alerts** of actual errors^[2].
- Provides a substantial amount of data for analysis.

[1] Mastin, P. (2016). *Real User Measurements*. O'Reilly Media, ISBN: 9781491944059, Chapter 2

[2] Croll A., Power S.(2009). *Complete Web Monitoring*, O'Reilly Media, ISBN: 9780596551353, Chapter 10

Limitations of Real User Monitoring (RUM)

- Dependence on user traffic.
- Possible page-speed reduction.
- Data privacy concerns.
- Large volume of data to be stored.^[1]
- Insufficient volume of data during non-peak hours.^[1]
- Can not test features prior to deployment. ^[1]

[1] Mastin, P. (2016). *Real User Measurements*. O'Reilly Media, ISBN: 9781491944059, Chapter 2

Existing Commercial Tools

- *Heap*: <https://heap.io/>
- *Hotjar*: <https://hotjar.com/>
- *Calibre*: <https://calibreapp.com/>
- *Sematext*: <https://sematext.com/>
- *Dynatrace*: <https://dynatrace.com/platform/real-user-monitoring/>
- *UXCam*: <https://uxcam.com/>
- ...

Existing Non-Commercial Tools

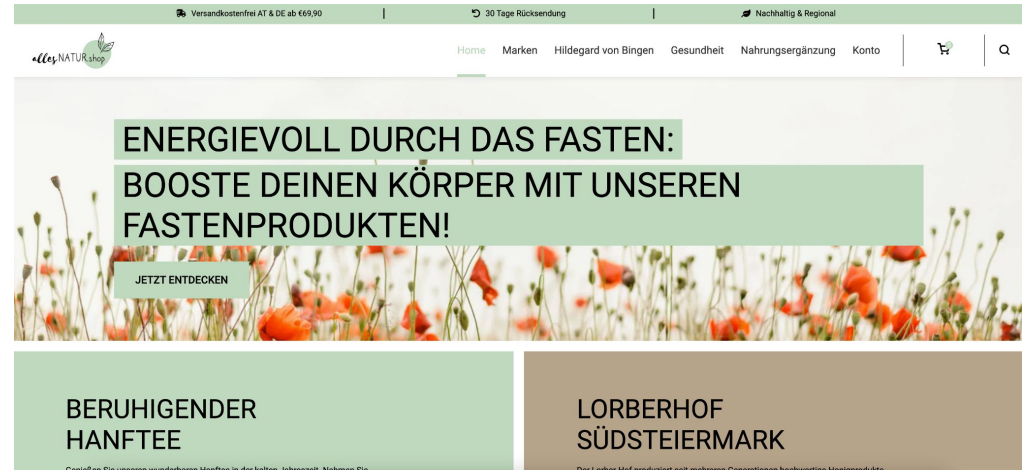
- *Microsoft Clarity*: <https://clarity.microsoft.com/>
- *OpenObserve*: <https://github.com/openobserve/openobserve>
- *BasicRum*: <https://basicrum.com/>

Survey Focus

- Comparison of 3 tools:
 - Heap
 - Hotjar
 - Microsoft Clarity
- Testing tools regarding pre-defined feature set.
- Investigation of E-Commerce website.
- Recommendation of tool.

Investigated Website

- <https://allesnatur.shop/>
- Austrian-based online shop.
- ~ 9000 monthly sessions.
- Visitors mainly from Austria and Germany.



Canonical Feature Set 1

- *Real Time Tracking*: Follow a live user during their visit to the website.
- *Session Replay*: Playback recordings of user sessions.
- *Error Tracking*: Logging errors that occur.
- *Real Performance Measurements*: Report Core Web Vitals^[1]

[1] Understanding Core Web Vitals and Google search results: <https://developers.google.com/search/docs/appearance/core-web-vitals>

Canonical Feature Set 2

- *User Paths*: Record paths users take on website.
- *User Segmentation*: Group users based on behaviour patterns or metadata.
- *User Survey*: Custom survey templates for websites to integrate.
- *Satisfaction Metrics*: Provide metrics like Rage Click^[1] or Bounce Rate^[2].

[1] Semantic Metrics: <https://learn.microsoft.com/en-us/clarity/insights/semantic-metrics>

[2] Bounce Rate: https://en.wikipedia.org/wiki/Bounce_rate#cite_note-Marketing_Metrics-1

Feature-Tool Overview

	Hotjar	Heap	Clarity
Real Time Tracking	x	events-only	✓
Session Replay	✓	premium version	✓
Error Tracking	✓	premium version	✓
Real Performance Measurements	GA integration	x	✓
User Paths	✓	✓	✓
User Segmentation	✓	✓	✓
User Surveys	✓	x	x
User Satisfaction Metrics	✓	✓	✓

Hotjar^[1]

- Pros
 - Easy onboarding
 - Intuitive to use
 - Transparent pricing
 - User Survey and Interviews
 - Customer Support
- Cons
 - Commercial tool
 - Scaling Pricing
 - Resource consuming (~400 KB's bundle size)
- USP
 - User Survey and Interviews

[1] Hotjar: <https://www.hotjar.com/>

⚠️ There might be an issue with your tag. [Verify installation](#)

+ New dashboard

Pinned

Any dashboards you pin will show here

Dashboards

Site overview

Site overview

An aggregated view of all your data. [Share your feedback](#)

🔔 👁 3

+ Add widget

All sessions

Direct traffic

Error occurred

Mobile users

New users

Organic traffic

Paid traffic

Rage clicked

Returning users

Last 30 days

+ Add filter

Total sessions

931



Avg. session duration

4:53



Avg. pages / session

4



Bounce rate

50.7%



Top console errors

across all pages

Script error.



38 sessions

Uncaught TypeError: b.target.className.search is not a function



6 sessions

TypeError: undefined is not an object (evaluating 'textFields[0].value')



4 sessions

TypeError: b.target.className.search is not a function. (In 'b.target.className.search('wp...')



4 sessions

Uncaught TypeError: Cannot read properties of undefined (reading 'top')

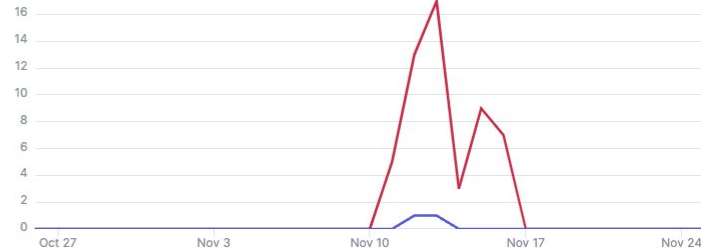


2 sessions

Rage clicks & u-turns

Sessions of users who felt frustrated or confused

across all pages



● Rage clicks ● U-turns

Rate your experience

Heap^[1]

- Pros
 - Visually appealing
 - Intuitive to use
 - Documentation/Learning support
 - Customer Support
- Cons
 - Commercial tool
 - Intransparent pricing
 - Onboarding requires technical knowledge.
 - Resource consuming (~307 KB's bundle size)
- USP
 - Rich documentation and beginner friendly.

[1] Heap: <https://www.heap.io/>

🔍 Search

🏠 Overview

📊 Dashboards

📈 Charts

📊 Analyze

📊 Data

📄 Pages

👤 Users

🕒 Sessions

🔔 Updates

🔗 Integrations >

💬 Support

⚙️ Account >

Trial: 5 days remaining

Main Development >

Basic overview ☆

1 view • Created by you on Nov 16, 2024

Discover the top pages and users of your site.

Filter by | [+ Add Filter](#)

What are the top viewed pages?

Past 7 Days by Entire Range



See which pages have the most traffic

Which pages are landed on the most?

Past 7 Days by Entire Range



Which marketing channels drive the most traffic?

Past 90 Days by Entire Range



Shows the volume of sessions over time, broken out by marketing channel (e.g. search, display, social media).

Where are my users typically located?

Past 7 Days by Entire Range



3 ?

Clarity^[1]

- Pros
 - Non-Commercial (free-to-use but no open source)
 - Very lightweight (~70 KB's bundle size)
 - Covers almost all relevant features.
 - AI chatbot as dashboard support.
- Cons
 - Onboarding requires technical knowledge.
 - Not as visually appealing.
 - No Support
- USP
 - Free and lightweight

[1] Clarity: <https://clarity.microsoft.com/projects>

Filters Segments Last 3 days JavaScript errors: Any JS error Save as segment Clear

Sessions

13 5 bot sessions excluded

Pages per session

1.15 average

Scroll depth

100% average

Active time spent

18 sec out of 1.2 min total time

Users overview All users User intent

0 Live users < 1 min ago

13 Unique users



Table with 3 columns: Session type, Percentage, Count

Top user See all users

Insights

Rage clicks 0% 0 sessions

Dead clicks 7.69% 1 sessions

Excessive scrolling 0% 0 sessions

Quick backs

My watchlist



Keep track of what you care about

Add to watchlist

Our Recommendation: Clarity

- *Cost effective*: Completely free to use, ideal for low budget projects.
- *Performance-Friendly*: Very lightweight with only ~70 KB bundle size.
- *Feature-Rich*: Covers most survey relevant features.
- *Innovative Tools*: Includes an AI chatbot for enhanced user interaction

Our goto RUM!

Thank you for your attention

Questions?