

Automatic sample ratio mismatch detection for A/B experiments

Optimizely's automatic SRM detection minimizes a users' exposure time to bad experiences from a poorly designed experiment.

The feature has a **dual role**: It gives peace of mind with helpful indicators of an experiment's health and also **rapidly pinpoints** any experiment deterioration.

What is a sample ratio mismatch?

A sample ratio mismatch (SRM) occurs when the traffic split between variations in an A/B experiment becomes severely unbalanced.

Why do I need automatic detection for this?

Timing is everything with imbalance detection and Optimizely's automatic SRM detection test notifies users in-product with precision and speed (Email notifications coming in Q1 2024).

Early detection offered by this feature can radically reduce the number of your customers exposed to a faulty experiment. It means that you don't have to worry about missing an imbalance, and also means freedom from manual calculations slowing you down.

Products this feature applies to:



Feature Experimentation



Web Experimentation

What does the alert actually do?

Automatic SRM detection will provide in-product alerts for any experiment deterioration as soon as it's detected. Early detection helps you determine the severity of the imbalance and stop a faulty experiment as quickly as possible. This early detection can greatly reduce the number and length of time users are exposed to a faulty experiment.

Key benefits



Early SRM detection

No more fear of missing an imbalance and no more manual calculations slowing you down. Early detection helps you stop a faulty experiment as quickly as possible and can greatly reduce the number of potential users exposed to it.



Real-time results protection

You no longer have to wonder when the right time is to test for an imbalance. Optimizely's advanced sequential SRM algorithm continuously checks traffic counts throughout an experiment.



Performance and accuracy

Automatic SRM detection has been built with performance and accuracy at the forefront. No matter how traffic flows into the experiment, accuracy is ensured and load times won't be impacted by latency.

More on sequential sample ratio mismatch

Optimizely's automatic SRM detection rapidly pinpoints any experiment deterioration. Deterioration is caused by unexpected imbalances of visitors to a variation in an experiment. The goal of using any SRM detector is to reduce the exposure time of a user to bad experiences (aka burn-in effect prevention). But Optimizely doesn't stop at automatic detection of untrustworthy experiments, we can identify just how severely an imbalance can impact an experiment and how to fix it.

An imbalance occurs when the actual size of the visitors to a variation doesn't match the intended group size (i.e. distribution or %) assigned to a variation. Intended group size refers to the "split," as in the traffic distribution.

A sample ratio mismatch is only a symptom of a variety of data quality issues. Ignoring an SRM without having an idea of the root cause may result in a bad feature appearing to be good and getting shipped out to users, or vice versa.

Our automatic detection is vastly more sensitive and reliable than free SRM calculators. Those are based on outdated, traditional statistics that were never built for continuous monitoring and are only useful if used at the exact right time, exactly one time. Optimizely's imbalance detection algorithm is called Sequential Sample Ratio Mismatch. Optimizely pioneered this method and it is a new contribution to the field of sequential statistics.

Frequently Asked Questions

Where can I learn about the importance of automatic SRM detection and the impact of visitor imbalance on my experiments?

Check out these articles:

- [Optimizely's automatic Sample Ratio Mismatch \(SRM\) detection discovers any experiment deterioration early](#)
- [Imbalance Detected – What to do if Optimizely's automatic SRM detection alerts you to a sample ratio mismatch](#)

If I segment my experiment results, will the automatic SRM be affected?

The automatic SRM feature checks the reliability of aggregate results. Segments are trustworthy for decision making but do not get the same automatic imbalance detection treatment.

If I assign an even split to my variations and see the split is not perfectly even in the results page, is there a problem?

Not at all. Remember: a SRM is a statistically significant difference, not simply "any visible difference at all." Nothing can guarantee a perfect split across an entire experiment. There will always be some slight deviation, around 2% or less.