ARA Basic Flexible Configs

PR #856

What is it?

- The most basic elements of the [flexible event configs](#) explainer
  - Forward compatible with that proposal, i.e. an incremental step towards support
- Allows for configuring two important parameters in the API
  - The maximum number of reports per source, up to 20
  - The number and precise timing of reporting windows, up to 5, which allows for changing the default early windows for CTCs

How does the privacy work?

- Issue [#694](#) links a [spreadsheet calculator](#) for how the noise changes with respect to these parameters to satisfy a particular value of epsilon
  - p = k / (k - 1 + exp(epsilon)) for k possible outputs
- Configurations which exceed maximum channel capacity for clicks / views will be dropped
  - exact maximum TBD, but feedback appreciated
  - Channel capacity = log2(k) - h(p') - p'log2(k - 1)
  - Where p' = p(k - 1) / k and h is the [binary entropy function](#)
- [flexible-event/flexible_event_privacy.py](#) can also be used as a calculator for both