

ethnio™

Technical Overview



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Summary

Ethnio works by displaying a survey-like screener to your site visitors, with questions that you create. It can be deployed via JavaScript layer that's triggered on your site, as a direct link, or implemented in iOS or Android apps. This document describes the basic structure and functionality of ethnio. As of 2018, we run RubyOnRails 4.2.3 on Ruby 2.12 on Nginx and Unicorn with PostgreSQL and Redis. We use Rails caching based on Redis to show screeners.

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The Basics

Ethnio is similar to a survey in functionality, but built exclusively for researchers. The basic functionality is that you can create a web-based form with custom questions, place JavaScript on your web site, and then control the display of that form from inside of ethnio. We call these things **screeners**. A visitor to your web site that views an ethnio form can submit answers that go directly to Ethnio servers, either via SSL or regular HTTP. The Screener consists of three steps:

1. Invite page
2. Question page
3. Thanks page (or Congrats page if Logic is enabled)

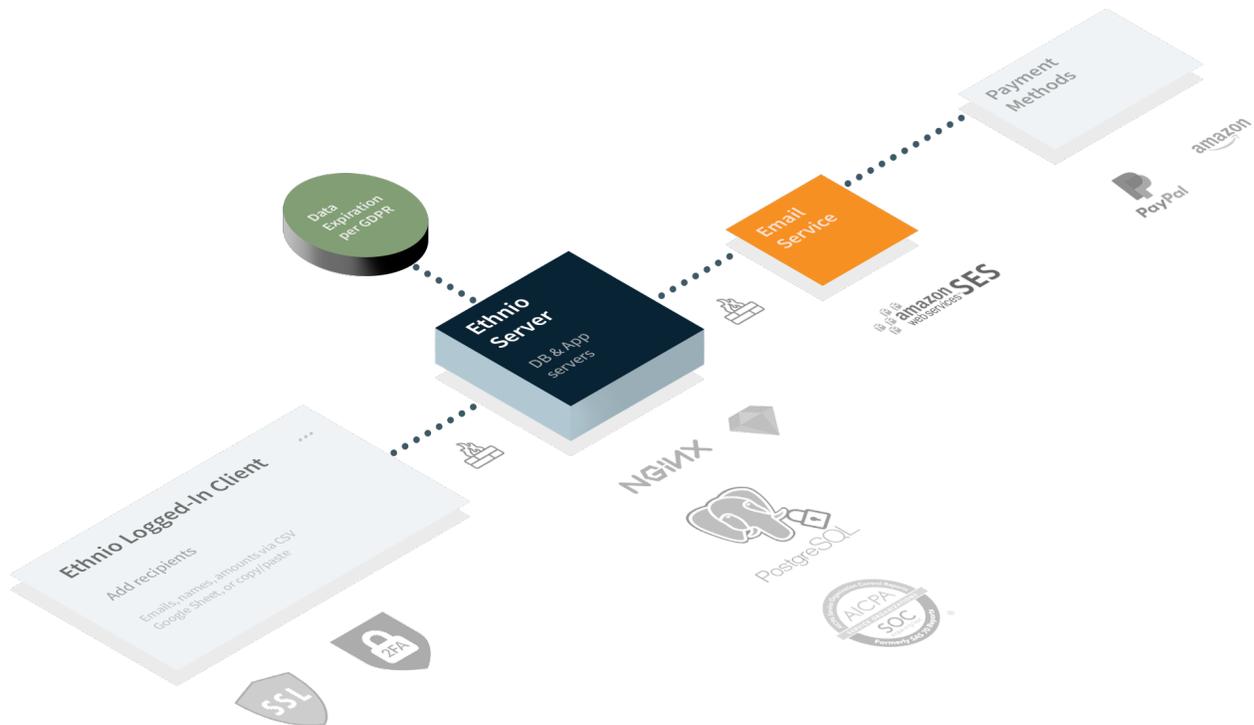
The first page is implemented using DHTML and can be dragged and dropped. The second and third steps are rendered into an iframe to allow data submission to Ethnio servers from your web site. The Javascript which our customers can embed to their own site contains three parts:

1. Ethnio part
2. Drag and drop library based on dom-drag.js
3. Maintenance JS code



Data Flow for Incentives

Here's a diagram of one component of data flow within Ethnio - in this case it's the incentive feature. It gives you a sense of the protocols and stack we use. More info here: <https://help.ethn.io/hc/en-us/articles/360014270271>





Internal Data Use Policies

- Subject access requests policy: Employees will need to be able to recognize and deal with (or refer up) subject access requests.
- Complaints handling policy: Companies should have a transparent and clear procedure in place for dealing with complaints from individuals. Where complaints are made to the organization itself, they must be responded to within 45 days of receipt. You should designate a particular person to handle questions and complaints arising under the Shield. Individuals will also be able to complain through other channels (see step 4 above) – so there should be clear procedures in place to ensure your staff can deal swiftly and appropriately with approaches from third party dispute resolution bodies and/or regulators.
- Data handling policies: Companies should ensure their data-handling policies are up-to-date, state-of-the-art, and completely implemented. This includes information security policies, access controls, and procedures for investigating data breaches.
- Also, make sure your systems are set up so you are able to correct, amend and delete personal data on request.



Architecture

These are the three most interesting methods:

- ***Ethnio.should_display*** - Returns true or false. Checks several option before make decision show or not screener.
- ***Ethnio.get_cookie*** - Returns cookie stored by ethnio code
- ***Ethnio.set_cookie*** - Set cookie for certain user to know that screener already displayed.
- ***Ethnio.currently_displayed*** - Returns true if screener is showing right now
- ***Ethnio.wheel_of_fortune*** - Magic function which implements 'Display Interval'
- ***Ethnio.show*** - Main point of code for displaying screener / first page of screener
- ***Ethnio.insertiframe*** - Prepare iframe for rendering second and third steps of screener

We've also tried to use the simplest "Drag and Drop" library to the invite screen so that it's draggable. We use maintenance JavaScript for workaround issues with cross-domain scripting between two different domains. In our case, each screener's JS code can be embedded into any host. Therefore on the second and third steps, a problem with communication between main window (any host) and iframe which contains questions or thanks page and always works with 'ethn.io' domain.



Performance

We use all the industry-standard monitoring and optimization tools you're probably familiar with - New Relic, Pingdom, Munin, and Monit. Uptime stats are maintained off-domain here and go back years and years at roughly 99.87% uptime. Optimizing the performance and caching of this one little piece of JS has been a priority for five years. You might appreciate a bit of an explanation as to what exactly each segment of the JS is doing. So here's that code:

```
<script type="text/javascript" language="javascript" src="//ethn.io/xxxxx.js" async="true" charset="utf-8"> </script>
```

Let's break this down even further to explain each part:

```
type="text/javascript"
```

This tells the server what kind of code this is. In this case, it is Javascript.

```
language="javascript"
```

Another way of telling the server that this is Javascript, but is recognized by older browsers. We use them both to make sure that everyone sees the Ethnio code properly.

```
src="//ethn.io/xxxxx.js"
```

a few things here. the "//" allow the code to dynamically detect if it's been placed on an HTTPS or regular HTTP page. the xxxxx.js part uses a dynamic and cached .js file to keep up maximum performance on our end.

```
async="true"
```



This just tells the browser to load everything else before it loads the Ethnio code.

charset="utf-8"

Character set encoding so that all languages display properly.

Size can differ a bit, but is usually between 10-15kb. Average server response time for screeners is about 8ms. This time only shows how fast our servers process requests and give responses. Transfer time to and from your servers can differ depending on just about a million variables.

More info:

<https://help.ethn.io/hc/en-us/articles/200202775-Performance-Stability>

Service level agreement

If you're interested in an SLA, we can include that in an Ultra Enterprise agreement. Please email info@ethn.io or call us at 888 879 7439 for more information.