

IF Archive Play-On-Site Request for Proposals

28 March 2020

Introduction and Background

The [Interactive Fiction Technology Foundation](#) (IFTF) seeks a contractual *Developer/Administrator* to create, develop, and maintain a service for playing Twine games and other web-hosted games stored on the IF Archive. This contract will be on a fixed-cost-per-month basis. IFTF plans to use the selected vendor's cost estimate as the basis of a fundraising campaign. Please keep in mind that engagement with a vendor is contingent on IFTF's ability to raise sufficient funds before the engagement begins.

Goals

The IF Archive (ifarchive.org) hosts a growing collection of web-playable games (client-side Javascript) created with Twine, Inform 7, and other tools.

We prefer to store these games as archived packages, one zip archive file per game. This saves bandwidth, offers a consistent download URL for each game, and avoids the risks of untrusted Javascript in game packages. However, for historical reasons, IF Competition entries are an exception; they are stored in unarchived, fully playable form. (See <http://ifarchive.org/indexes/if-archive/games/competition2019/>, etc.)

We wish to resolve this inconsistency. Ideally, all games should be stored in archived form, but also be playable in browser with no vulnerability to untrusted scripting.

Requirements

We envision a new IF Archive service, hereafter “Unbox”, which automatically converts packaged game archives to playable form. This will live on a new domain or subdomain. The examples below assume the subdomain `unbox.ifarchive.org`, but DNS and LetsEncrypt requirements may change this to a separate domain such as `ifarchive-unbox.org`.

`https://unbox.ifarchive.org/`

The home page for the service will show a simple form that accepts an IF Archive URL. A submitted URL will be posted to `https://unbox.ifarchive.org/?URL`.

```
https://unbox.ifarchive.org/?URL
```

This will verify that the URL refers to a primary IF Archive domain. (`ifarchive.org`, `www.ifarchive.org`; `http` and `https` versions of those.) It also verifies that the URL refers to an existing file archive (`zip`, `tar.Z`, `tar.gz`) with a path beginning `/if-archive/`.

If valid, this returns an HTML list showing the package contents. (All files in the archive, not just the top-level folder.) Filenames are linked to their canonical URLs (see below). The main file (normally `index.htm` or `index.html`) will be called out at the top with a “Play this game” link.

Adding the URL parameter `&format=json` will return the file list in JSON form.

Adding the URL parameter `&launch=true` will redirect to the main file’s canonical URL.

The canonical URL for resource files (every type except HTML and SVG) will be

```
https://unbox.ifarchive.org/HASH/FILE
```

...where `HASH` is the SHA-512 hash of the *path part* of the original URL.

HTML and SVG files use the same URL except in the domain `HASH.unbox.ifarchive.org`:

```
https://HASH.unbox.ifarchive.org/HASH/FILEPATH
```

That is, if the primary URL

```
https://ifarchive.org/if-archive/games/dir/foo.zip
```

...contains the archived files

```
index.html  
code.js  
img/pic1.jpeg  
img/pic2.jpeg
```

...then the path part is `/if-archive/games/dir/foo.zip`. Imagine for the sake of readability that this hashes to `fabc0987`. (SHA-512 hash strings are 128 hex digits in real life, but I’m not typing all that.) The canonical URLs will then be:

```
https://fabc0987.unbox.ifarchive.org/fabc0987/index.html  
https://unbox.ifarchive.org/fabc0987/code.js  
https://unbox.ifarchive.org/fabc0987/img/pic1.jpeg  
https://unbox.ifarchive.org/fabc0987/img/pic2.jpeg
```

Resource URLs in the `HASH.unbox` domain will redirect to the `unbox` domain; non-resource URLs in the `unbox` domain will redirect to the `HASH.unbox` domain.

Files under `https://unbox.ifarchive.org/HASH` will use the header:

```
Access-Control-Allow-Origin: https://HASH.unbox.ifarchive.org/
```

The intent is that visitors will play the game from the `HASH.unbox` domain. This is unique to the game and therefore shields other games (and other IF Archive resources) from untrusted script code. However, resource files (including images and other large media files) will be served from the `unbox` domain, which will be behind a Cloudflare cache and thus mostly safe from bandwidth attacks.

Since each resource fetch will be redirected from `HASH.unbox` to the (CDNified) `unbox` domain, the system will not be entirely protected by Cloudflare. However, the redirect responses should be fast and low-bandwidth.

Note: the IF Archive is set up to treat a game's path (`/if-archive/games/dir/foo.zip` in this example) as a stable public identifier for the game. That's why the hash is based on it. If metadata is needed for unbox processing – e.g., a non-default location for the launch file – it can be loaded from `https://ifarchive.org/metadata/PATH.json`.

```
https://ifarchive.org/metadata/if-archive/games/dir/foo.zip.json
```

Considerations

In an ideal world, the plan would offer:

- Reliable functionality
- Security
- Open source components
- Low effort of maintenance (it should run for long periods without administrative attention)
- Simplicity (it should depend on a small set of technologies)
- Stability over time (the dependencies should remain accessible and stable in the future)
- Clarity (future IF Archive administrators should be able to understand and update the system)
- Low cost of maintenance (minimize hosting costs)
- Efficient and fast operation

In this imperfect world, at least consider the tradeoffs between these goals. This list roughly represents our priorities, most important first.

Scope of Work

We have divided work into two phases.

Phase 1: Initial setup

- Provision the unbox site using IFTF resources. Relevant IFTF resources:
 - Hover for domain registration
 - Linode for dedicated virtual servers
 - Amazon Web Services
- Implement the requirements
- Set up downtime monitoring on the site following industry best practices.

Phase 2: Maintenance and improvements

- Respond to downtime incidents in a timely fashion. Your proposal should include a service-level agreement to a response time.
- Discuss opportunities for improvements to the service and implement them as directed

The initial contract would be for a 12-month term, with an option to extend to an additional year or more at the end of that term.

Budget

IFTF plans to fundraise to support this contractual position. Therefore, the intent of this RFP is to both select a developer/administrator and determine fundraising needs.

IFTF will pay all necessary overhead costs for this project, including domain registration and web site hosting, to the relevant companies directly. Vendors should exclude these costs from their proposal.

Submission Requirements

Proposals should include:

- A description of the vendor's web development experience.
- Description and URLs of related previous projects that the vendor has worked on.
- A budget outlining total cost per month for Phase 1 and Phase 2.
- A proposed timeline for delivery of Phase 1.
- An overview of technologies to be used.
- At least two client references.

Proposals should be formatted as a single PDF document.

Evaluation and Selection Process

All submissions must be made by midnight, April 30, 2020, US Eastern Time by email at info@iftechfoundation.org. Proposals will not be accepted through any other means. The IFTF Archive committee, in coordination with the board of directors, will determine whether proposals submitted meet the criteria articulated above and which vendor is best-positioned to deliver on the milestones listed above. Vendors will be notified of IFTF's decision by May 31, 2020.

Execution of a contract is contingent on IFTF's ability to raise sufficient funds for this project.

Contact Information

Inquiries can be made at info@iftechfoundation.org.