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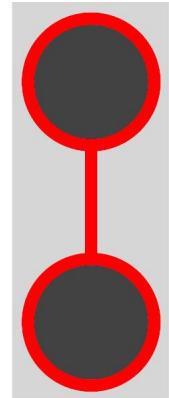
Robustifying Links with Zotero

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zotero +



<https://robustlinks.mementoweb.org/zotero/>

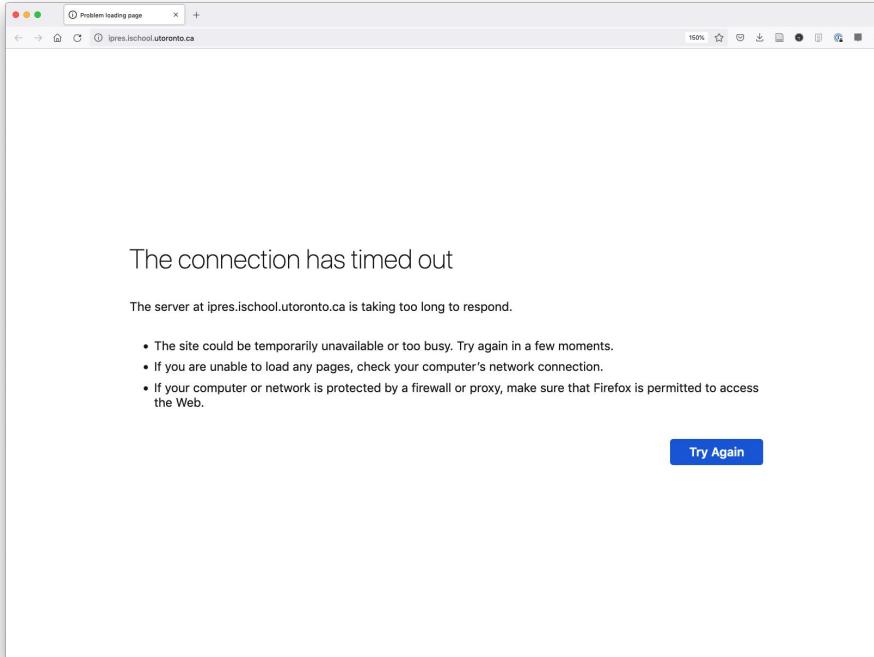
<https://github.com/lanl/Zotero-Robust-Links-Extension/>

Stuff happens...



The Web is Ephemeral

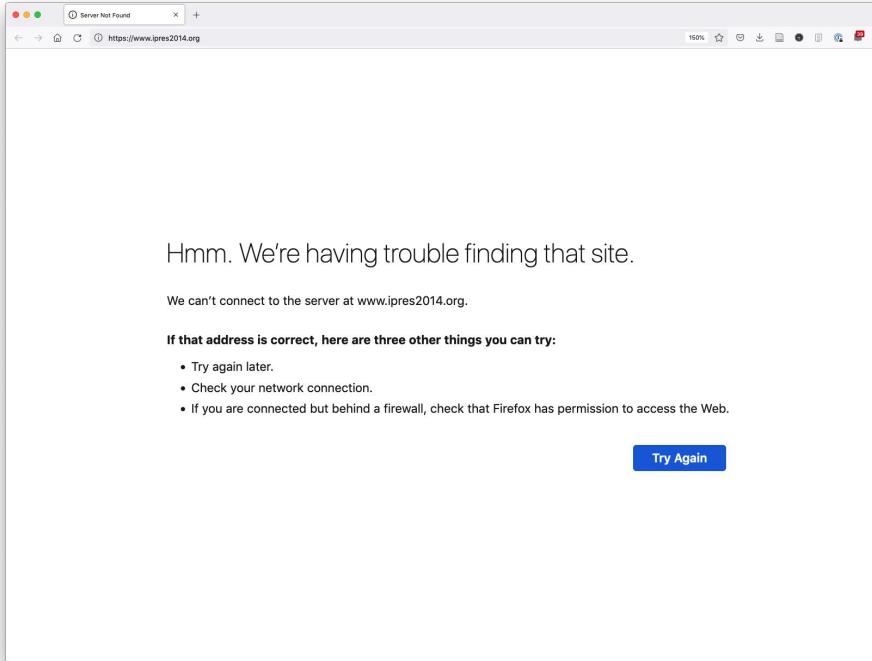
Link Rot:
Link stops working
e.g., HTTP 404



iPres 2012
<http://ipres.ischool.utoronto.ca>

The Web is Ephemeral

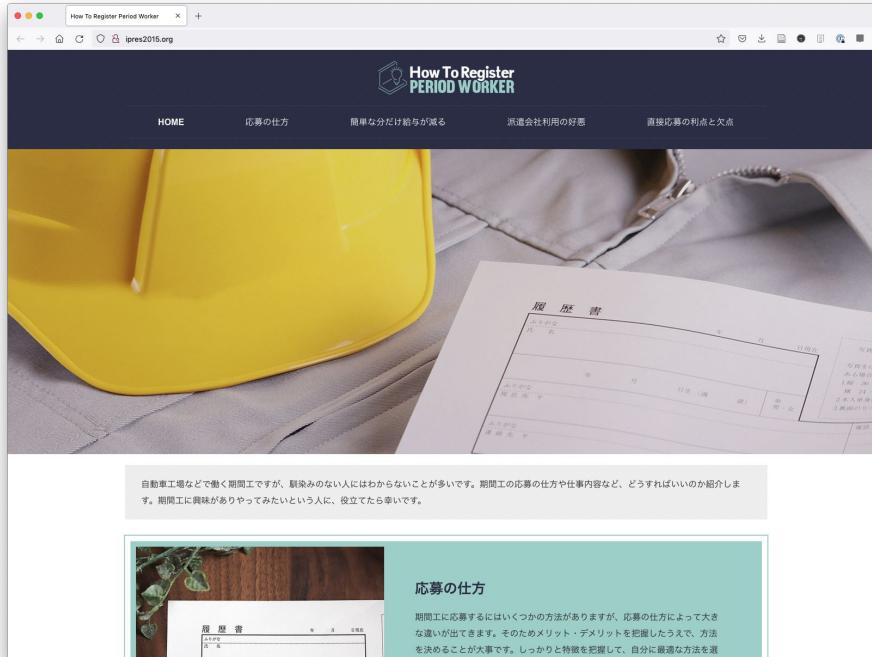
Link Rot:
Link stops working
e.g., HTTP 404



iPres 2014
<https://www.ipres2014.org/>

The Web is Ephemeral

Content Drift:
Linked content
changes over time



iPres 2015
<https://www.ipres2015.org/>

Reference Rot = Link Rot + Content Drift



<http://hiberlink.org/>

Reference Rot

- Web resources referenced in <your_favorite_medium_here>:
 - Are subject to reference rot just like any other web resource.
 - Are not necessarily under the custodianship of parties that care about long term integrity and access.
 - Do not necessarily have the same sense of fixity that, for example, journal articles have.

Robust Links

1. **Create a snapshot** of referenced resources in a public web archive

perma.cc



archive.is
webpage capture

Robust Links

1. Create a snapshot of referenced resources in a publically available web archive
2. **Robustify links** with:
 - URI of archived snapshot (memento)
 - datetime of archiving/linking
 - original URI of resource

Benefits:

- Can visit live version of referenced resource
- Can visit created memento of referenced resource
- Original URI + capture datetime allows finding an appropriate capture in all web archives
- Uniform, machine-actionable

Robustified Link

```
<a href="https://ipres2022.scot/"  
iPres 2022</a>
```

<http://robustlinks.mementoweb.org/spec>

Robustified Link

```
<a href="https://ipres2022.scot/"  
    data-versionurl="https://archive.ph/s2i4H"  
    data-versiondate="2022-09-07">  
    iPres 2022</a>
```

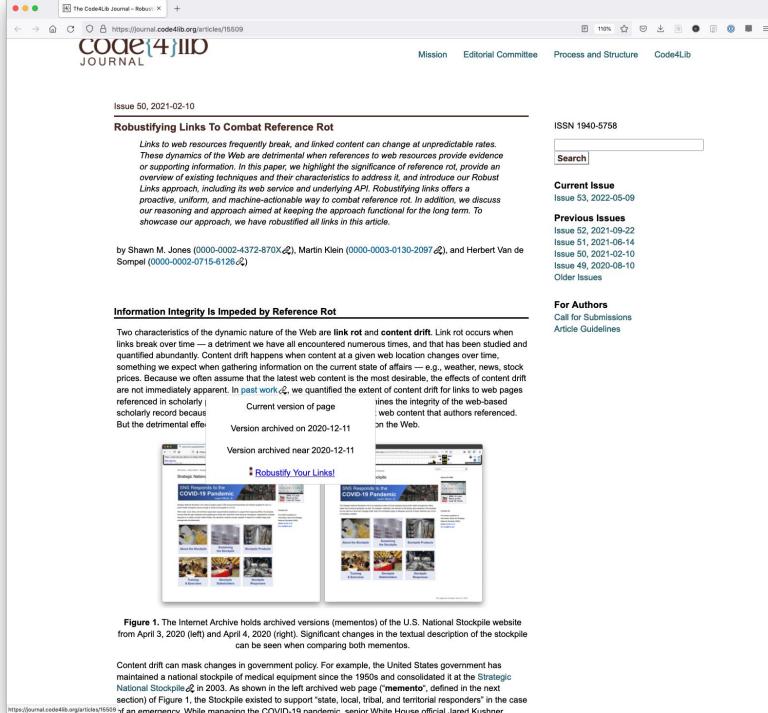
<http://robustlinks.mementoweb.org/spec>

Robustified Link

```
<a href="https://archive.ph/s2i4H"  
data-originalurl="https://ipres2022.scot/"  
data-versiondate="2022-09-07">  
iPres 2022</a>
```

<http://robustlinks.mementoweb.org/spec>

Robust Links in Action



Issue 50, 2021-02-10

Robustifying Links To Combat Reference Rot

Links to web resources frequently break, and linked content can change at unpredictable rates. These dynamics of the Web are detrimental when references to web resources provide evidence or supporting information. In this paper, we highlight the significance of reference rot, provide an overview of existing techniques and their characteristics to address it, and introduce our Robust Links approach, including its web service and underlying API. Robustifying links offers a proactive, uniform, and machine-actionable way to combat reference rot. In addition, we discuss our reasoning and approach aimed at keeping the approach functional for the long term. To showcase our approach, we have robustified all links in this article.

by Shawn M. Jones (0000-0002-4372-870X) , Martin Klein (0000-0003-0130-2097) , and Herbert Van de Sompel (0000-0002-0715-6126) 

Information integrity is Impeded by Reference Rot

Two characteristics of the dynamic nature of the Web are **link rot** and **content drift**. Link rot occurs when links break over time – a detriment we have all encountered numerous times, and that has been studied and quantified abundantly. Content drift happens when content at a given web location changes over time, something we expect when gathering information on the current state of affairs – e.g., weather, news, stock prices, etc. We often assume that the latest web content is the most relevant, but significant content drift are not immediately apparent. In past work , we quantified the extent of content drift for links to web pages referenced in scholarly scholarly record because But the detrimental effects

Current version of page Version archived on 2020-12-11

Version archived near 2020-12-11

Robustify Your Links!

Figure 1. The Internet Archive holds archived versions (memories) of the U.S. National Stockpile website from April 3, 2020 (left) and April 4, 2020 (right). Significant changes in the textual description of the stockpile can be seen when comparing both mementos.

Content drift can mask changes in government policy. For example, the United States government has maintained a national stockpile of medical equipment since the 1950s and consolidated it at the Strategic National Stockpile  in 2003. As shown in the left archived web page ("memento", defined in the next section of Figure 1), the Stockpile existed to support "state, local, tribal, and territorial responders" in the case of an emergency. While managing the COVID-19 pandemic, senior White House official Jared Kushner

<https://journal.code4lib.org/articles/15509>

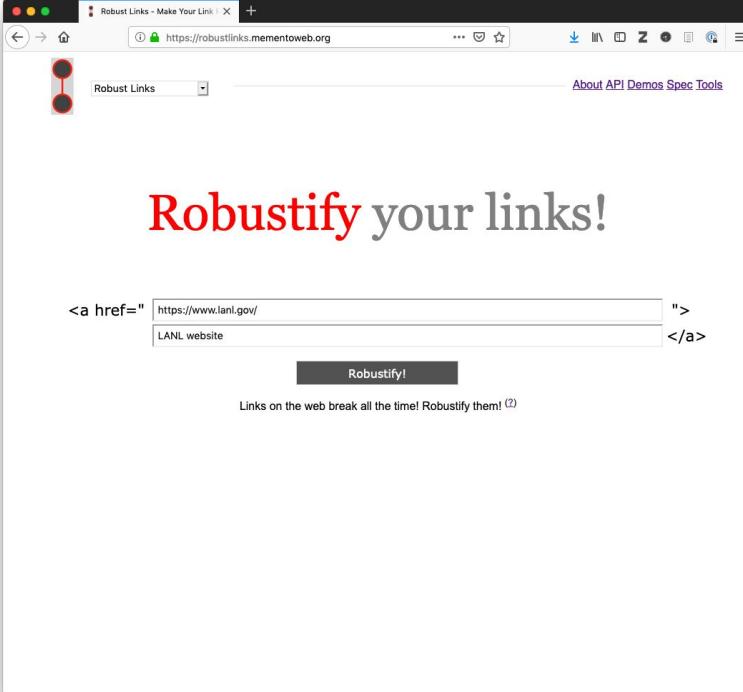
<!-- RobustLinks CSS -->

```
<link rel="stylesheet" type="text/css"
      href="https://doi.org/10.25776/z58z-r575" />
```

<!-- RobustLinks Javascript -->

```
<script type="text/javascript"
      src="https://doi.org/10.25776/h1fa-7a28"></script>
```

<https://robustlinks.mementoweb.org/>



Robust Links - Make Your Link <https://robustlinks.mementoweb.org/>

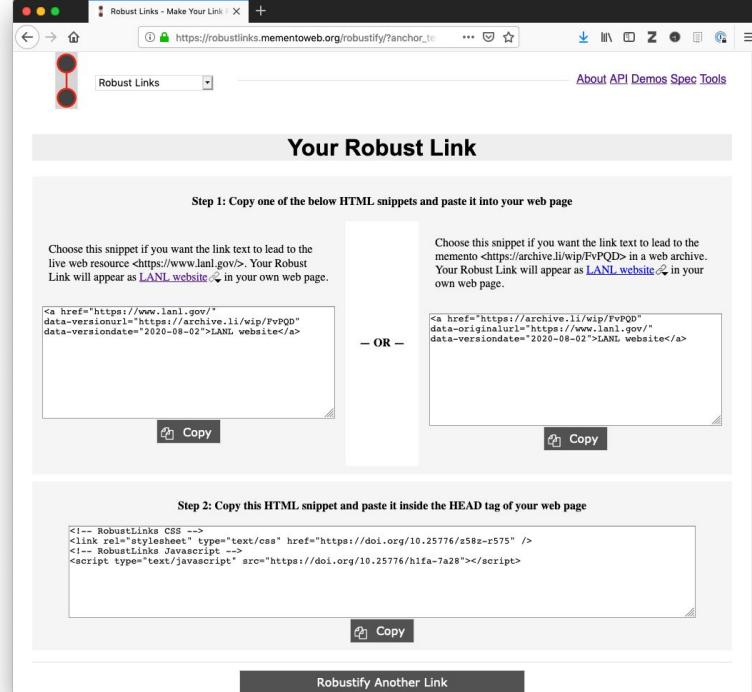
Robust Links [About API Demos Spec Tools](#)

Robustify your links!

```
<a href="https://www.lanl.gov/">  
  LANL website  
</a>
```

Robustify!

Links on the web break all the time! Robustify them! [\(?\)](#)



Your Robust Link

Step 1: Copy one of the below HTML snippets and paste it into your web page

Choose this snippet if you want the link text to lead to a live web resource <https://www.lanl.gov/>. Your Robust Link will appear as [LANL website](#) in your own web page.

```
<a href="https://www.lanl.gov/"  
  data-versionurl="https://archive.li/wip/FvPOD"  
  data-versiondate="2020-08-02">LANL website</a>
```

— OR —

Choose this snippet if you want the link text to lead to the memento <https://archive.li/wip/FvPOD> in a web archive. Your Robust Link will appear as [LANL website](#) in your own web page.

```
<a href="https://archive.li/wip/FvPOD"  
  data-originalurl="https://www.lanl.gov/"  
  data-versiondate="2020-08-02">LANL website</a>
```

Step 2: Copy this HTML snippet and paste it inside the HEAD tag of your web page

```
<!-- RobustLinks CSS -->  
<link rel="stylesheet" type="text/css" href="https://doi.org/10.25776/z58z-r575" />  
<!-- RobustLinks Javascript -->  
<script type="text/javascript" src="https://doi.org/10.25776/h1fa-7a28"></script>
```

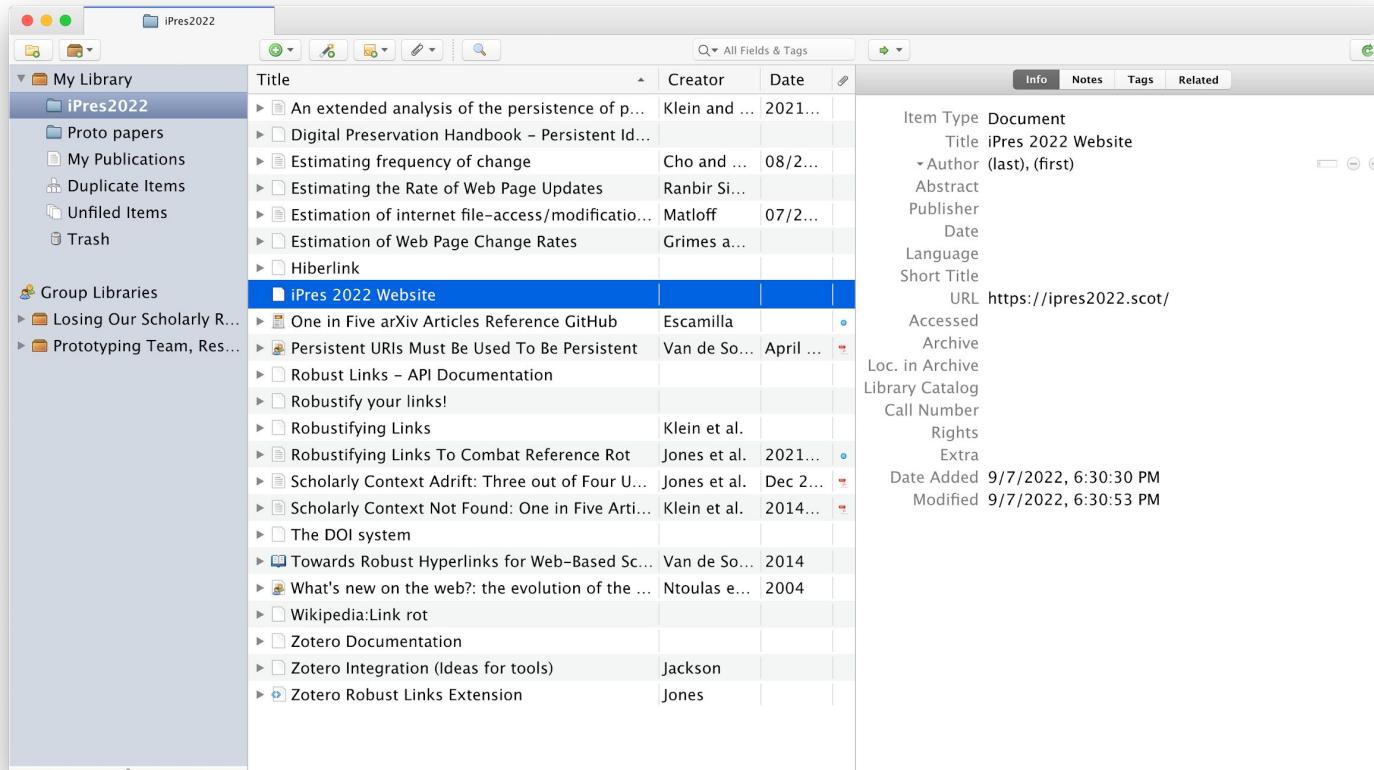
Robustify Another Link

<https://robustlinks.mementoweb.org/zotero/>

- Creates an archival copy of any ingested item with a valid URL
 - Automatically when ingested via identifier
 - Manually when created otherwise
- Creates a note for each item with Robust Links data for copy and paste
- Exports robustified links via Zotero Translator



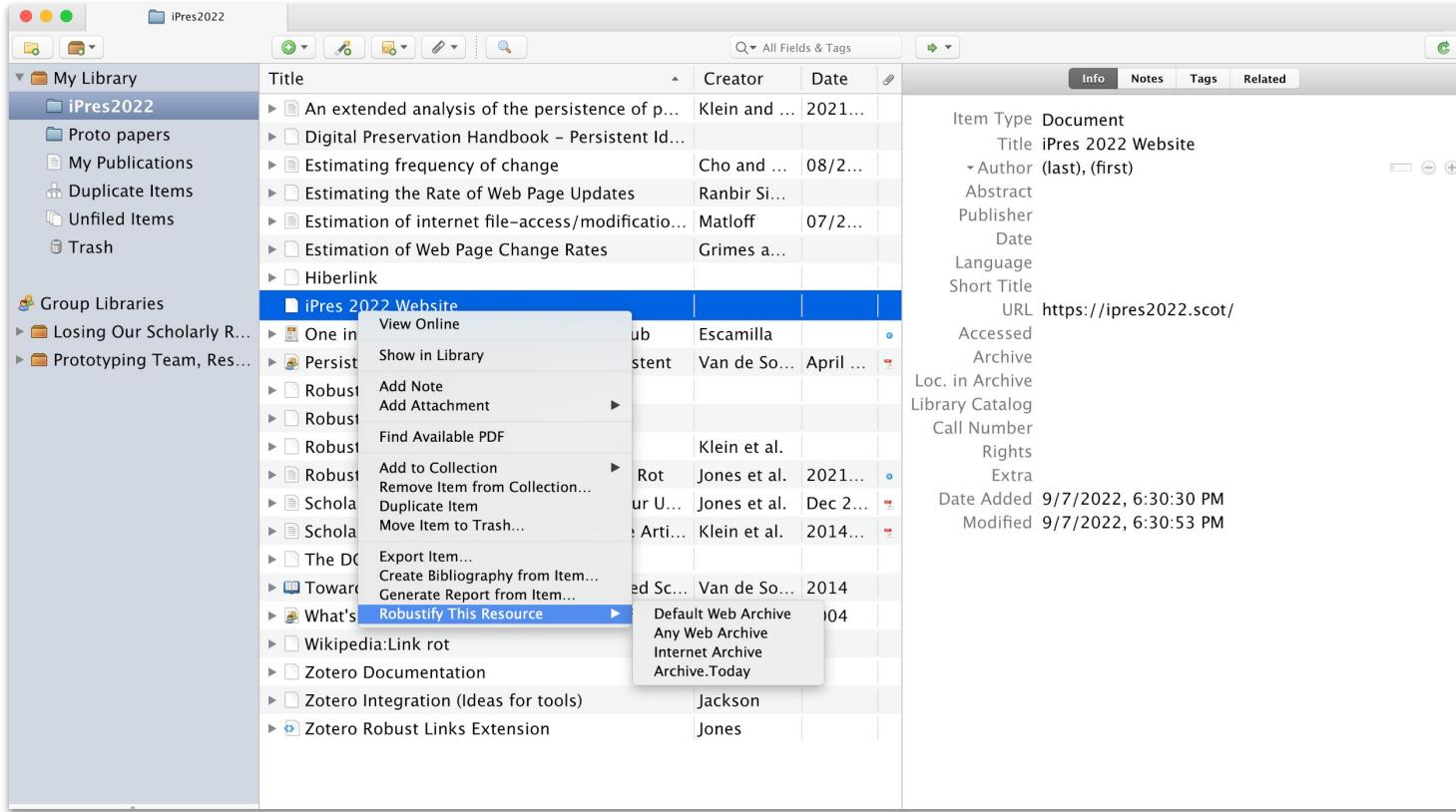
Manually Ingested Item - iPres Website



The screenshot shows the Zotero application interface. On the left, the 'My Library' sidebar is open, displaying the 'iPres2022' folder. The main pane shows a list of items, with the 'iPres 2022 Website' item selected. The right pane displays detailed metadata for this item, including:

Item Type	Document
Title	iPres 2022 Website
Author (last), (first)	
Abstract	
Publisher	
Date	
Language	
Short Title	
URL	https://ipres2022.scot/
Accessed	
Archive	
Loc. in Archive	
Library Catalog	
Call Number	
Rights	
Extra	
Date Added	9/7/2022, 6:30:30 PM
Modified	9/7/2022, 6:30:53 PM

Manually Robustifying Item

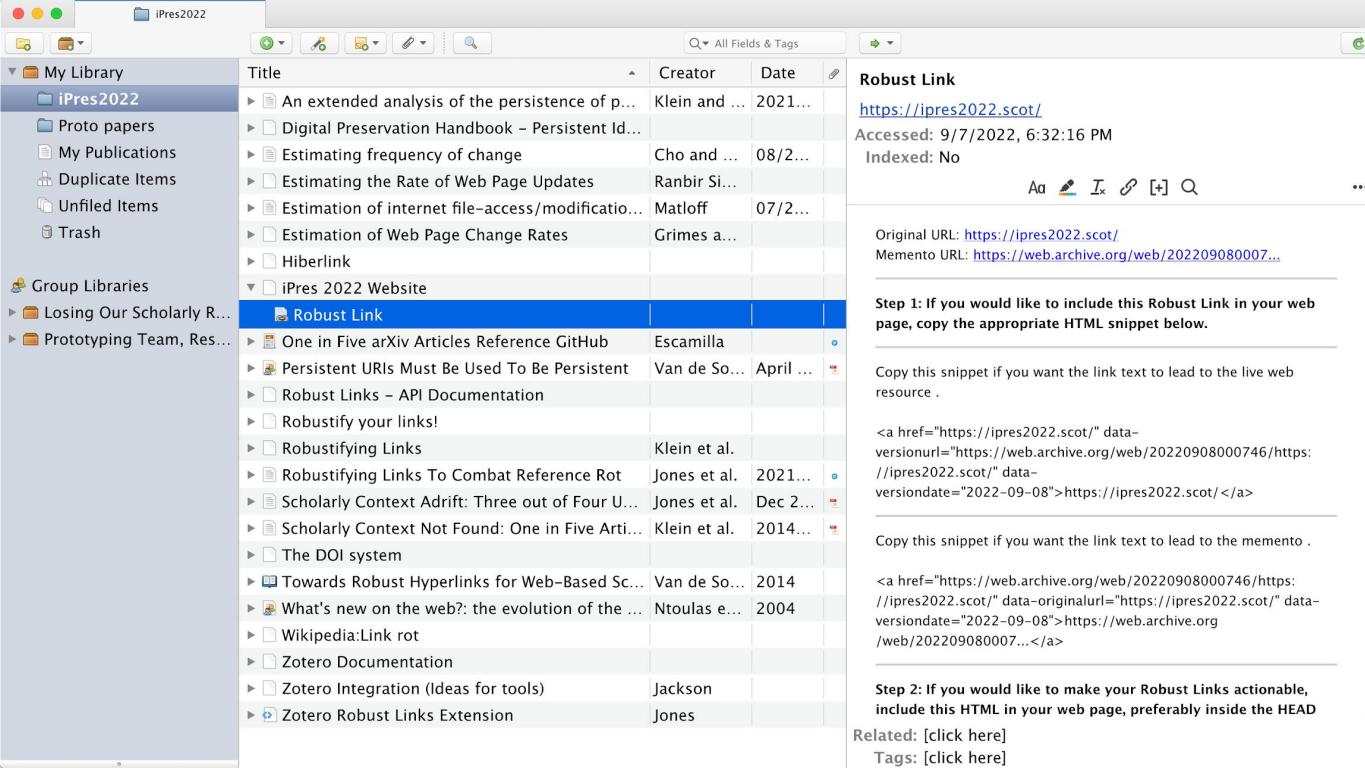


The screenshot shows the Zotero application interface. On the left, the library sidebar is visible with categories like 'My Library', 'iPres2022', 'Proto papers', etc. The main area displays a table of items. A context menu is open over an item in the table, with the 'Robustify This Resource' option highlighted. A sub-menu for this option is open, showing 'Default Web Archive', 'Any Web Archive', 'Internet Archive', and 'Archive.Today'. The right side of the interface shows the item details in the 'Info' tab, including the title 'iPres 2022 Website', URL 'https://ipres2022.scot/', and various metadata fields.

Title	Creator	Date
An extended analysis of the persistence of p...	Klein and ...	2021...
Digital Preservation Handbook – Persistent Id...		
Estimating frequency of change	Cho and ...	08/2...
Estimating the Rate of Web Page Updates	Ranbir Si...	
Estimation of internet file-access/modificatio...	Matloff	07/2...
Estimation of Web Page Change Rates	Grimes a...	
Hiberlink		
iPres 2022 Website		
View Online		
Show in Library		
Add Note		
Add Attachment		
Find Available PDF		
Add to Collection		
Remove Item from Collection...		
Duplicate Item		
Move Item to Trash...		
Export item...		
Create Bibliography from Item...		
Generate Report from Item...		
What's this?		
Robustify This Resource		
Wikipedia:Link rot		
Zotero Documentation		
Zotero Integration (Ideas for tools)		
Zotero Robust Links Extension		

Item Type Document
Title iPres 2022 Website
Author (last), (first)
Abstract
Publisher
Date
Language
Short Title
URL <https://ipres2022.scot/>
Accessed
Archive
Loc. in Archive
Library Catalog
Call Number
Rights
Extra
Date Added 9/7/2022, 6:30:30 PM
Modified 9/7/2022, 6:30:53 PM

Robust Links Note



The screenshot shows the Zotero application interface. On the left, the 'My Library' sidebar is open, displaying a tree structure with 'iPres2022' as the root folder. Under 'iPres2022', there are sub-folders: 'Proto papers', 'My Publications', 'Duplicate Items', 'Unfiled Items', and 'Trash'. Below these are 'Group Libraries' with entries for 'Losing Our Scholarly R...' and 'Prototyping Team, Res...'. The main pane displays a table of items. One item, 'Robust Link', is selected and highlighted with a blue background. The right side of the interface shows a detailed view of this item. The 'Title' is 'Robust Link', and the 'Creator' is 'iPres2022'. The 'Date' is '2021-09-08'. The 'Content' pane shows the following text:

Robust Link
<https://ipres2022.scot/>
Accessed: 9/7/2022, 6:32:16 PM
Indexed: No

Original URL: <https://ipres2022.scot/>
Memento URL: <https://web.archive.org/web/20220908000746/https://ipres2022.scot/>

Step 1: If you would like to include this Robust Link in your web page, copy the appropriate HTML snippet below.

```
<a href="https://ipres2022.scot/" data-versionurl="https://web.archive.org/web/20220908000746/https://ipres2022.scot/" data-versiondate="2022-09-08">https://ipres2022.scot/</a>
```

Copy this snippet if you want the link text to lead to the live web resource .

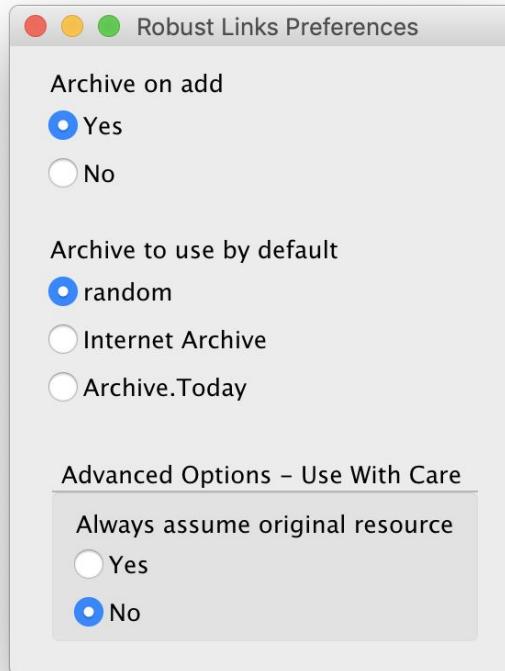
```
<a href="https://web.archive.org/web/20220908000746/https://ipres2022.scot/" data-originalurl="https://ipres2022.scot/" data-versiondate="2022-09-08">https://web.archive.org/web/20220908000746/https://ipres2022.scot/</a>
```

Copy this snippet if you want the link text to lead to the memento .

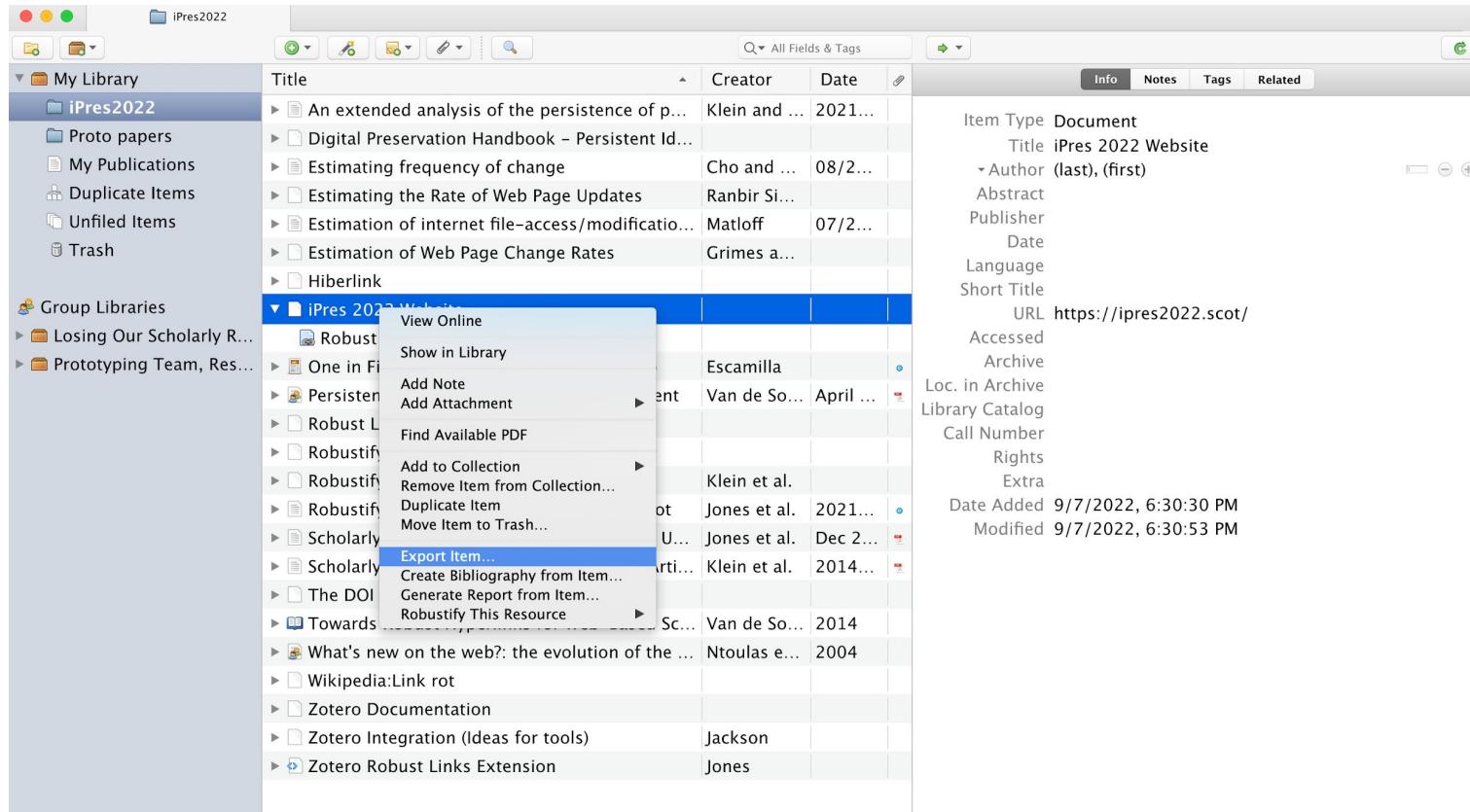
Step 2: If you would like to make your Robust Links actionable, include this HTML in your web page, preferably inside the HEAD

Related: [click here]
Tags: [click here]

Robust Links Preferences



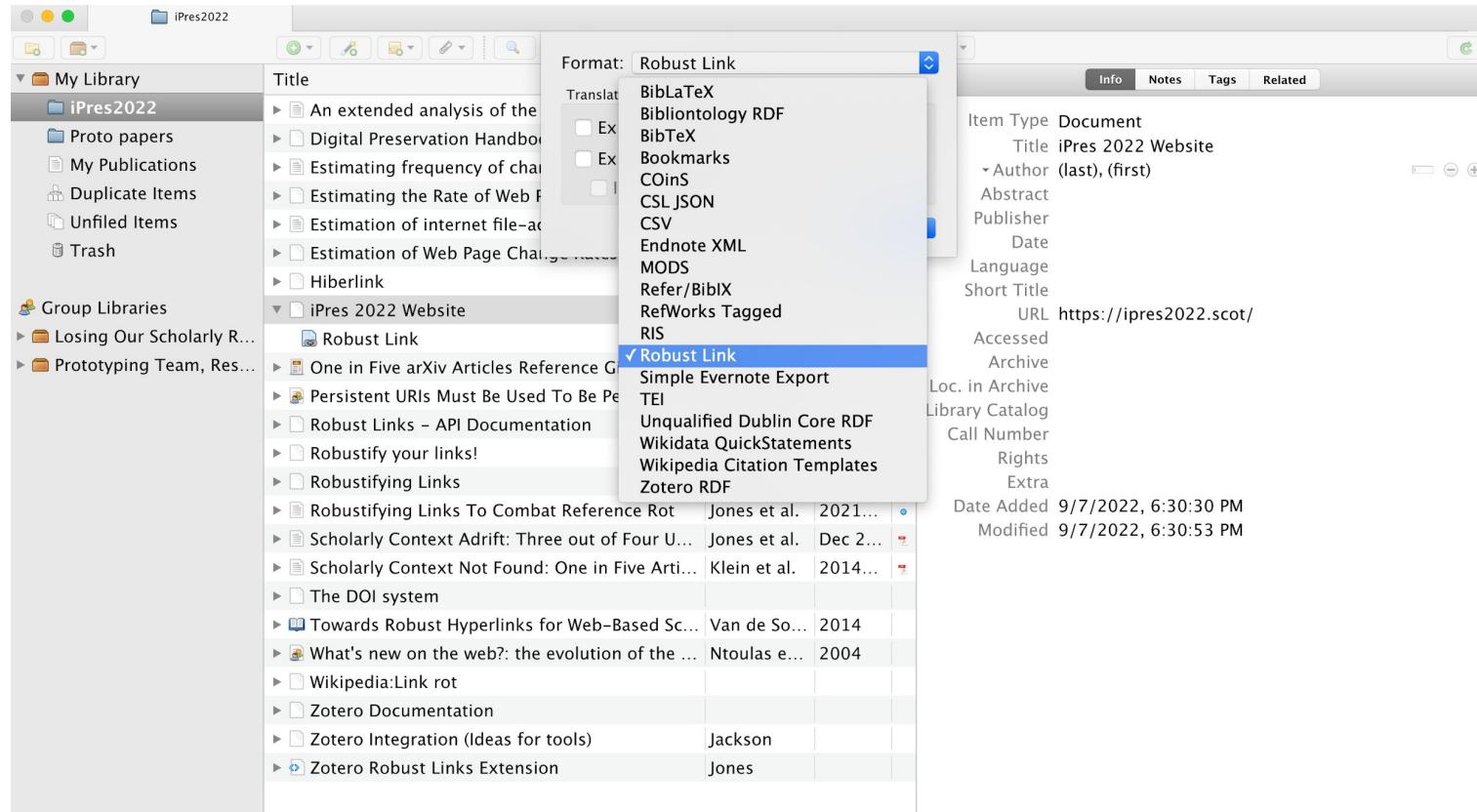
Robust Links HTML Export



The screenshot shows the Zotero application interface. On the left, the library sidebar shows 'My Library' with 'iPres2022' selected. The main pane displays a list of items. A context menu is open over an item in the list, with 'Export Item...' highlighted. The right panel shows item details:

Item Type	Document
Title	iPres 2022 Website
Author (last), (first)	
Abstract	
Publisher	
Date	
Language	
Short Title	
URL	https://ipres2022.scot/
Accessed	
Archive	
Loc. in Archive	
Library Catalog	
Call Number	
Rights	
Extra	
Date Added	9/7/2022, 6:30:30 PM
Modified	9/7/2022, 6:30:53 PM

Robust Links HTML Export



The screenshot shows the Zotero application interface. On the left, the library sidebar is open, showing 'My Library' and 'iPres2022' (selected). The main pane displays a list of items, and a context menu is open over one of the items. The 'Format' dropdown menu is open, showing various export options. The 'Robust Link' option is selected, indicated by a blue highlight and a checked checkbox. The right pane shows the item details for 'iPres 2022 Website', including the URL <https://ipres2022.scot/>.

Format: Robust Link

- BibLaTeX
- Bibliontology RDF
- BibTeX
- Bookmarks
- COIins
- CSL JSON
- CSV
- Endnote XML
- MODS
- Refer/BibIX
- RefWorks Tagged
- RIS
- Robust Link
- Simple Evernote Export
- TEI
- Unqualified Dublin Core RDF
- Wikidata QuickStatements
- Wikipedia Citation Templates
- Zotero RDF

Item Type Document
Title iPres 2022 Website
Author (last), (first)
Abstract
Publisher
Date
Language
Short Title
URL <https://ipres2022.scot/>
Accessed
Archive
Loc. in Archive
Library Catalog
Call Number
Rights
Extra
Date Added 9/7/2022, 6:30:30 PM
Modified 9/7/2022, 6:30:53 PM

In Summary

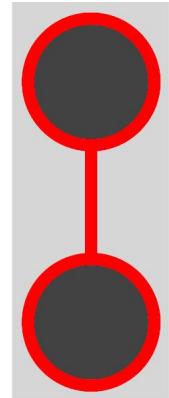
- The Web is dynamic
 - Web pages disappear (“link rot”) and change (“content drift”) all the time
- Burden to provide reliable links via Robust Links is on the author, publisher, etc
 - Create an archival copy where none exists
 - Robustify links
- Zotero Robust Links extension can help, try it out and share your thoughts!
 - <https://robustlinks.mementoweb.org/zotero/>
 - <https://github.com/lal/Zotero-Robust-Links-Extension/>

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zotero +



<https://robustlinks.mementoweb.org/zotero/>

<https://github.com/lanl/Zotero-Robust-Links-Extension/>