

Green Psychology: Exploring Open Access Repositories on Psychology

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ABSTRACT

This paper analyzes open access repositories (known as Green path to Open Access) in the area of psychology to demonstrate nature and features of these repositories. It includes OA repositories related to psychology and related disciplines that are listed in the OpenDOAR (Directory of Open Access Repositories) over the years. OpenDOAR lists around a total of 73 OA repositories of which only 53 are providing OAI/PMH base URL. This paper includes two conceptual parts – i) analysis of OA repositories on psychology against a set of parameters like software in use, country of origin, language wise distribution, document types etc; and ii) development of a framework for harvesting OAI/PMH compliant OA repositories on psychology for designing a single-window search service. .

Keywords: OA Archives, Green Open Access, OpenDOAR, Open Access Repositories, Institutional Repositories.

INTRODUCTION:

BASE - an exclusive search engine for Open Access (OA) scholarly materials recently reports coverage of 82 million OA resources (as on March 31, 2015), DOAJ now covers 10,500+ OA journals, OpenDOAR and ROAR provides listing of more than 3,500+ OA repositories (as on March 31, 2015). These facts and figures indicate that a movement, which was started in 1984 as a small initiative of Los Alamos University (through arxiv) in the name of Open Access movement, is now quite matured in terms of support, philosophy of open knowledge, technologies and coverage. OA knowledge system may broadly be divided into two groups namely - open access journal publishing (called “gold OA”) and open access self-archiving, by authors, of non-open-access publications (called “green OA”). The growth of OA repositories helps users to find out OA version of journal papers that are otherwise available through commercial channels. But at the same time the exponential growth of OA in distributed manner creates problems in OA retrieval (Sarkar & Mukhopadhyay, 2010). The problems of retrieving OA are of two folds – organizational level and integration level. As reported by Mukhopadhyay (2015), the problem of OA organization is that no standard metadata schema has any metadata elements to indicate the status of a resource as OA to satisfy - i) users need to understand what rights they have for a given knowledge object; ii) authors want to know what rights they will retain (after publication in OA system) and iii) publishers want to clearly convey what readers can and cannot do with the objects they publish. Similarly at the retrieval domain the main problem is distribution of OA across different IDRs in different web locations which are using different software, different metadata architecture, different user interfaces and different retrieval techniques. These heterogeneous retrieval environment creates huge problem for discovery of OA resources by the end users.

This paper is an attempt to analyze current status of OA repositories on Psychology as listed in OpenDOAR in order to propose a model for integration of all OAI/PMH compliant repositories in the domain for end users.

GROWTH OF GREEN PATH OF OPEN ACCESS:

A repository may be designed as an archive of knowledge objects like journal papers, theses, technical reports etc for open access. The author of the repositories or someone on behalf of the author may upload the document. This process is called author self-archiving. It is also termed as Green path of open access (whereas Gold path is publishing by author directly in OA journals). The Open DOAR – Directory for Open Access Repositories was initially launched in 2005 in response to the fact that there was “a number of different lists of repositories and open access archives, but no single comprehensive or authoritative list which recorded the range of academic open access repositories” (www.opendoar.org retrieve on 27th Jan., 2015).

The dramatic Growth of Open Access Repositories as reported in Open DOAR (<http://www.opendoar.org>) highlights the steady increase in Open Access Repositories across the globe. For example, Fig.1 shows the growth of searchable OA document published in OA Repositories listed in Open DOAR.

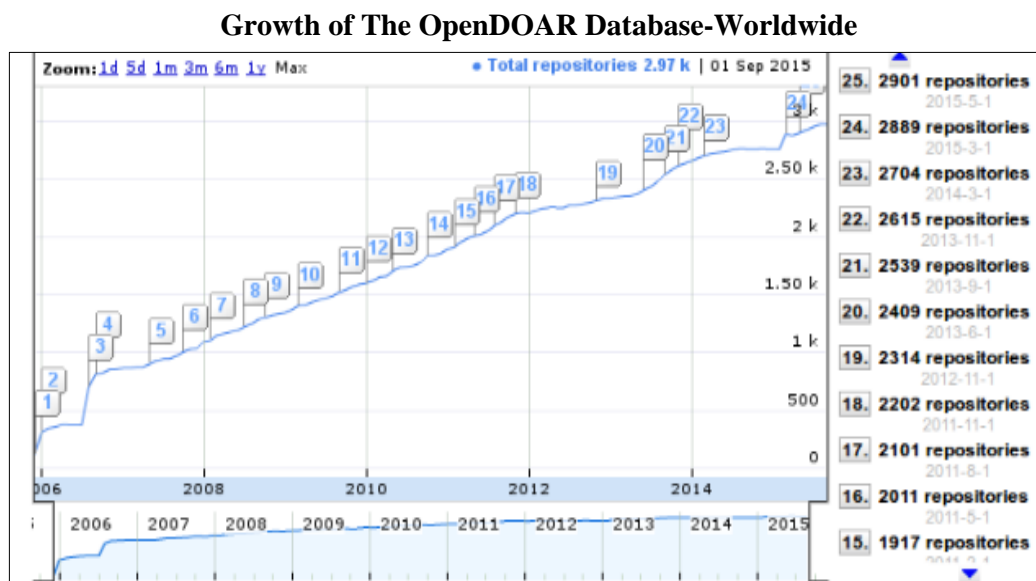


Fig.1 : Growth of OA Repositories in Open DOAR from 2006 to 2015
(source Open DOAR database) (Source: <http://www.opendoar.org/onechart>)

This graph shows an average rate of registration of repositories in OpenDOAR. Obviously this growth rate reflects the steady increase on the availability of open knowledge objects in different forma and formats.

INTRODUCTION TO OA DIRECTORY SERVICES:

The previous section shows that green path to open access is increasing in geometrical progression. OA repositories supports the philosophy that publicly funded research should be available in public domain. The OA repositories are open in three basic tier – socially open (any can access and use for any lawful purpose), legally open (self archiving is legally safe

for authors see SHERPA/RoMEO project) and technically open (most of the OA repositories are using open standards and open source software for designing the systems). The major features of OA repositories are:

- Open Access Repositories allow author /right holder to deposit their article;
- May allow pre-prints (pre-published manuscript) ;
- Normally allow post-prints (peer-review and published article) ; and
- Most reputed academic publishers allow authors to deposit some version of their article in such repositories [<http://romeo.epints.org/stats.php>].

OPENDOAR: THE SALIENT FEATURES

Open DOAR is an authoritative directory of academic open access repositories. Each Open DOAR repository is visited by project staff to check the information that is provided by the repositories. This in-depth approach does not work-on automated analysis and gives a controlled list of repositories after human evaluation (wikipedia, 2015).

OpenDOAR provides simple repository list, search for repository or search repository contents. The content search interface of OpenDOAR is supported Google Custom Search Engine (CSE) and thereby ensures the power search features of the search leader of the world. The search repository provide tools and support to both repository administrators and service providers in sharing best practice and improving the quality of the repository infrastructure. Institutional repositories are one of the recommended ways to achieve the open access vision described in the Budapest Open Access Initiative definition of open access. This is sometimes referred to as the self-archiving or 'green' route to open access (wikipedia, 2015). Presently, it covers around 3200+ OA repositories with detail information on each of the listed repositories.

ROAR: THE SALIENT FEATURES

Registry of Open Access Repository (ROAR) is a searchable international indexing system to support discovery of Open Access institutional repositories. ROAR's companion database is the Registry of Open Access Repositories Mandatory Archiving Policies (ROARMAP), which provide open access peer-reviewed research article. Presently it covers around 3200+ OA repositories with detail information on each of the listed repositories.

OBJECTIVES

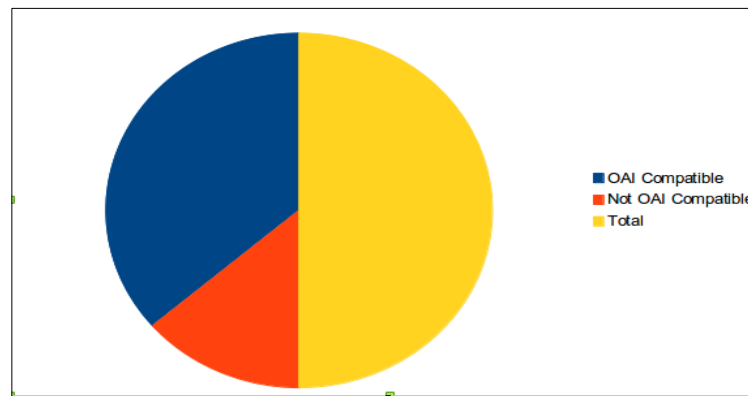
OA repositories in Psychology in gaining momentum day-by-day. As on date OpenDOAR lists global presence of 73 repositories (data as on March 31, 2015 reported in OpenDOAR). But OpenDOAR is not the only tool in the domain. There are two major tools to identify OA repositories which are OpenDOAR (Directory of Open Access Repositories), ROAR (Registry of Open Access Repository) etc. There are overlaps in these directory services but as OpenDOAR is more comprehensive, this article depends on the datasets as given in OpenDOAR.

The objectives of this study are to explore:

- To develop a state-of-the-art report/dataset on open access (particularly Green path) in the domain of Psychology.
- To analyze OA repositories on Psychology against different generic parameters like country of origin, language of open contents, and so on.
- To understand the technology sphere of Green path to OA on Psychology by analyzing software in use and standards compliance of these repositories.
- To develop a model for integrating distributed OA repositories on psychology for developing single-window search interface for OAI/PMH compliant repositories on Psychology.

OA REPOSITORIES IN PSYCHOLOGY:

The tree of subject which is provided by OpenDOAR during repository search shows that total number of OA repositories is 73 in Psychology discipline as a whole (see Fig. 2). A close analysis of the repositories on Psychology shows that only 53 (out of total 73) are OAI/PMH (version 2.0) standard compliant. It means that a total of 72.60% repositories in Psychology domain are supporting metadata harvesting through OAI/PMH protocol.



Naturally almost 27.39% of repositories as listed in OpenDOAR are not having OAI Base URL

Search or Browse for Repositories

Psychology (73) | Any Content Type | Any Repository Type | Any Country | Any Language | Any Software | Search

Summaries 20 per page | Sort by: OAI Base URL (desc.) | New Query

Results 1 - 20 of 73 | RSS1 Feed for this Query | Page: << Previous 1 2 3 4 Next >>

HAL Université de Savoie

Organisation: HAL, Université de Savoie, Université de Savoie, France
Description: This is the open archive of Université de Savoie, Chambéry which include the work of staff and students of the University. The interface is in French with an English option.
OAI-PMH: <https://oai.archives-ouvertes.fr/oai/uni-savoie>
Software: HAL
Size: 1503 items (2015-08-14)
Subjects: Chemistry and Chemical Technology; Earth and Planetary Sciences; Ecology and Environment; Mathematics and Statistics; Physics and Astronomy; Electrical and Electronic Engineering; Mechanical Engineering and Materials; Language and Literature; Law and Politics; Library and Information Science; Psychology
Content: Articles; Theses
Languages: French; English
Policies: Metadata policies unknown; Full data item policies unknown; Content policies unknown; Submission policies unknown; Preservation policies unknown
OpenDOAR ID: 2691, Last reviewed: 2015-06-18, [Suggest an update for this record](#), [Missing data is needed for: Policies](#)
 Link to this record: <http://opendoar.org/d/2691/>

Fig.2: OA repositories on Psychology as listed in OpenDOAR
(Source: <http://www.opendoar.org>)

OA Repositories on Psychology: Contents and Software

The dataset given below (as represented in table 2) shows that almost 77 million OA resources in the domain of psychology are available for end users. These 77 million resources are provided by 53 OARs distributed across the globe. These repositories are using mostly using open source software like Dspace (21 repositories), Eprints (18 repositories) and HAL (6 repositories). As far as contents are concerned, it ranges from less than 500 to more than 10 lakhs. The dataset shows that development of a single-window search service by integrating these 53 OAI/PMH compliant repositories can help end users in retrieving all 77 million resources from one access point irrespective of moving around different web location. Such a service may also help users to get rid of learning different retrieval techniques associated with different software.

Sl no.	Repository Name	Software used	No of documents
1	Binus University Repository	EPrints	21565
2	Bivipas (Biblioteca Digital en Violencia Sociopolítica Acción Sin Daño y Construcción de Paz BiViPas)	DSpace	491
3	Borys Grinchenko Kyiv University Institutional repository	EPrints	6092
4	Cogprints (Cognitive Sciences ePrint Archive)	EPrints	4244
5	COPELABS Scientific commons	EPrints	535
6	D-Scholarship@Pitt	EPrints	15263
7	Digital Library of Open University of Tanzania	EPrints	296
8	DSpace at Indian Institute of Management Kozhikode (DSpace@IIMK)	DSpace	563
9	Goldsmiths Research Online	EPrints	9276
10	HAL (Hyper Article en Ligne)	HAL	1014552
11	HAL Université de Savoie	HAL	1503
12	HAL-HCL	HAL	1086
13	HAL-Rennes 1	HAL	36763
14	Heythrop College Publications	EPrints	1068
15	History & Theory of Psychology Eprint Archive (HTP Prints)	EPrints	119
16	Hyper Article en Ligne - Sciences de l'Homme et de la Société (HAL- SHS)	HAL	83107
17	Institutional Repository of Institute of Psychology, CAS (PSYCH OpenIR)	DSpace	5106
18	Institutional Repository UIN Syarif Hidayatullah Jakarta	DSpace	24302
19	InsubriaSPACE	DSpace	350
20	Jefferson Digital Commons	Digital Commons	9390
21	Kagoshima Academic Repository Network (KARN)	DSpace	12022
22	KOPS (Konstanzer Online-Publikations-System)	DSpace	24114
23	LSE Research Online	EPrints	45660
24	LSE Theses Online	EPrints	3055

25	Mary Immaculate Research Repository and Digital Archive (MIRR)	DSpace	1136
26	MédiHAL	HAL	20153
27	Metabiblioteca-Biblioteca Digital Libros Abiertos	DSpace	431
28	NDSU Libraries Institutional Repository	DSpace	21453
29	PASCAL EPrints (Pattern Analysis Statistical Modelling & Computational Learning EPrints)	EPrints	8660
30	PePSIC - Electronic Psychology Journals (Portal de Periódicos Eletrônicos de Psicologia (PePSIC))	SciELO	51456
31	PubliCatt	DSpace	47815
32	Queensland University of Technology ePrints Archive (QUT ePrints Archive)	EPrints	61446
33	RDI.UCSG (Repositorio de Digital Institucional - UCSG)	DSpace	2868
34	Repositório Aberto da Universidade Aberta	DSpace	2751
35	Repositorio Académico UPC	Open Repository	2210
36	Repositorio de la Asociación Española de Neuropsiquiatría		1732
37	Repositorio de la Universidad de Cuenca	DSpace	20407
38	Repositorio Digital PUCE	DSpace	6105
39	Repositório do Hospital Prof. Doutor Fernando Fonseca	DSpace	1181
40	Repositorio Institucional de la Universidad de Oviedo (RUO)	DSpace	26604
41	Repositório Institucional do UniCEUB	DSpace	5767
42	Repository of Gomel State University	DSpace	1167
43	S@L: Scholarship at Lesley	IR+	1989
44	ScholarBank@NUS	DSpace	27179
45	St Mary's University Open Research Archive	EPrints	754
46	SURE (Sunderland University Institutional Repository)	EPrints	4173
47	Tilburg University Repository	PORT	29697
48	UCLA Biblioteca de Medicina		76030
49	UMS Institutional Repository	EPrints	9946
50	Universitas Ahmad Dahlan Repository	EPrints	1016
51	University of Essex Research Repository	EPrints	10568
52	Volltextserver der Virtuellen Fachbibliothek Psychologie (PsyDok)	OPUS	3624
53	Цифровий Репозиторій - Інтелектуальні Фонди Буковинського державного медичного університету	DSpace	7969
Total Contents			1776809

Table 2: No of documents wise distribution of OAI compatible repositories(Green path)

Table 2 is based on the number of documents and software wise distribution of OAI compatible repositories of Psychology subject in OpenDOAR OA Repositories. The distribution of OAI compatible repositories of Psychology subject in OpenDOAR OA Repositories. Software wise distribution showing in bar chart which is given below :

OA Repositories on Psychology: Country wise Distribution

It is interesting to note that 53 OAI/PMH compliant repositories in the domain of psychology are distributed in 19 countries. The largest number of repositories are from UK (15.09%), followed by France (11.32%) and then comes US (7.54%). The rest of the repositories i.e. 45 repositories are distributed in 16 countries.

Sl no.	Country name	No of OAR on Psychoogy	Percentage
1	United Kingdom	8	15.09
2	France	6	11.32
3	United States	4	7.54
4	Ecuador	3	5.66
5	Spain	2	3.77
6	Indonesia	2	3.77
7	Portugal	2	3.77
8	Venezuela	2	3.77
9	Italy	1	1.88
10	Germany	1	1.88
11	Ukraine	1	1.88
12	India	1	1.88
13	Colombia	1	1.88
14	Netherlands	1	1.88
15	China	1	1.88
16	Japan	1	1.88
17	Canada	1	1.88
18	Malaysia	1	1.88
19	Australia	1	1.88
Total		53	100%

Table 3: Country wise distribution of OAI compatible repositories(Green path)

Table 3 is based on the number of documents are distributed country wise of OAI compatible repositories of Psychology subject in OpenDOAR OA Repositories. The distribution of OAI compatible repositories of Psychology subject in OpenDOAR OA Repositories. Country wise distribution showing in bar chart which is given below :

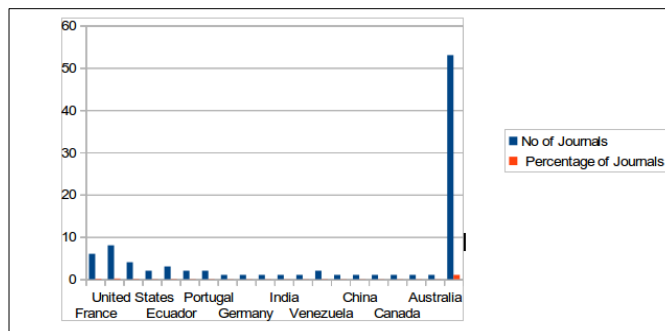


Fig. 4: Distribution of LIS OA Journals by country wise showing in column diagram

OA Repositories on Psychology: Language wise distribution

As expected, the largest number of OA knowledge objects available in these 53 repositories are available in English language (69.81%). The repository materials are also available in French (11.32%), Portuguese (7.54%), Italian (5.66%) and Spanish (5.66%). The contribution of other languages varies from 3.77% (German) to 1.88% (Arabic).

Sl no.	Language	No. of repositories	Percentage of repositories
1	English	37	69.81%
2	French	6	11.32%
3	Portuguese	4	07.54%
4	Italian	3	05.66%
5	Spanish	3	05.66%
6	German	2	03.77%
7	Ukrainian	2	03.77%
8	Russian	1	01.88%
9	Chinese	1	01.88%
10	Dutch	1	01.88%
11	Malay	1	01.88%
12	German	1	01.88%
13	Irish	1	01.88%
14	Arabic	1	01.88%
Total		53	100%

Table 4.: No of Language wise distribution of OAI compatible repositories(Green path)

Table 4 is based on the number of repositories are distributed in language wise of OAI compatible repositories of Psychology subject in OpenDOAR OA Repositories. The distribution of OAI compatible repositories of Psychology subject in OpenDOAR OA Repositories. Language wise distribution showing in bar chart which is given below :

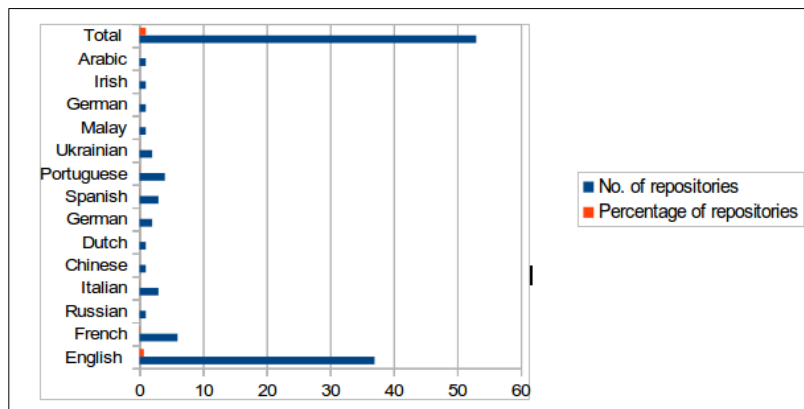


Fig. 5 : Distribution of LIS OA repositories by Language wise showing in bar diagram

OA Repositories on Psychology: Software wise Distribution :

As indicated earlier, Dspace is the most popular open source software and 37.73% OA repositories in psychology are using this software developed by MIT, US. However, 53 repositories are all together using 9 different software. The next most popular software after Dspace is Eprints (33.96%) followed by HAL (9.43%). Fortunately all these three software covering almost 85% of the repositories as listed in Table 2 are OAI/PMH compliant and thereby support metadata harvesting.

SI No.	Software name	No of Repositories	Percentage of Repositories
1	Dspace	21	39.62
2	Eprints	18	33.96
3	HAL	6	11.32
4	Open Repository	2	3.77
5	Digital commons	2	3.77
6	IR+	1	1.86
7	OPUS	1	1.86
8	SciELO	1	1.86
9	PORT	1	1.86
Total		53	100%

Table 5 : No of Software wise distribution of OAI compatible repositories(Green path)

Table 5 is based on the number of repositories are distributed in Software name wise of OAI compatible repositories of Psychology subject in OpenDOAR OA Repositories. The distribution of OAI compatible repositories of Psychology subject in OpenDOAR OA Repositories. Software name wise distribution showing in pie chart which is given below :

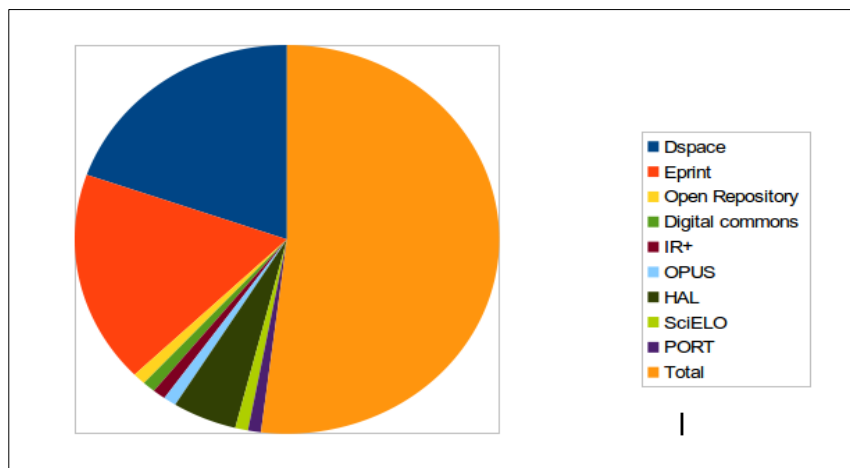


Fig. 6 : Distribution of LIS OA repositories by Software wise showing in pie chart

DESIGNING HARVESTING FRAMEWORK

It is clear from the datasets and corresponding discussion that it is quite possible to integrate these 53 OA repositories in psychology for developing a single-window search service through OAI/PMH standard based metadata harvesting. The harvesting framework may a three layer architecture as follows:

LAMP architecture

The basic cluster of the harvesting framework may include following open source companion software – Linux (any flavour) as operating system, Apache as web server, MySQL as backend DBMS and PHP as programming environment (popularly known as LAMP architecture)

PKP Harvester

There are many open source harvesting software but PKP harvester is possibly the most robust and comprehensive. This software can easily be installed and configured on the top of LAMP architecture.

Search and Retrieval

After installation and configuration of PKP harvester, the 53 repositories as listed in Table 2 may be added into the framework for harvesting. The software will harvest all metadata from these repositories and subsequently will create a central index for all harvested metadata on the basis of Dublin Core metadata standard (includes 15 descriptive metadata elements like DC. Creator, DC. Title, DC.Subject etc)

CONCLUSION:

Presently, Open Access is playing a big role to pave the path of an alternative scholarly communication system in place of or in addition to the traditional toll based scholarly communication process. With the growing number of OA repositories (termed as Green path of Open Access) on different subject domains, the possibility of finding results of publicly funded research in public domain freely and instantly is becoming a reality day-by-day. This paper demonstrates the possibility in the field of psychology and shows that the subject domain is following the global trend of opening up research results. As retrieval techniques of these OA repositories varies greatly from each other because if different software are in use, this paper also provides a method to harvest metadata automatically from different repositories in a single central index by using open source software and open standards.

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