



OFICINA DE TECNOLOGÍAS DE INFORMACIÓN DEL CONCYTEC

Software DSPACE 7.6.1
DSPACE 7.6.1 (Frontend / UI Only)
DSPACE 7.6.1 (Backend / REST API Only)

Manual técnico de Instalación y configuración

Historial de Versiones

Fecha	Versión	Descripción	Autor
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PROCEDIMIENTO DE INSTALACION Y CONFIGURACION DEL DSPACE-CRIS-V7 (dspace-cris-2022.01.01)

1. INTRODUCCIÓN

DSPACE, que es una aplicación informática de código abierto, utilizado como estándar por CONCYTEC para la implementación de repositorios digitales en las instituciones peruanas, los cuales formaran parte de la red de repositorios del país a través de la Plataforma de código abierto ALICIA.

2. OBJETIVO

Por el presente documento, se comparten los lineamientos necesarios para realizar la configuración y personalización del Dspace en un Entorno de Trabajo.

3. ALCANCE

El procedimiento es de alcance de las Instituciones del SINACYT.

4. PROCEDIMIENTO

Antes de iniciar los trabajos de configuración y personalización del repositorio, asegúrese de implementar un servidor con las **características mínimas de hardware** indicados a continuación para asegurar de que no se presenten problemas y/o conflictos durante su implementación.

4.1. Características técnicas

Características mínimas de hardware

Memoria	4 GB.
• 2G para Frontend (UI) / Node.js • 1G para Backend (REST API) / JVM / Tomcat • 512MB para PostgreSQL • 512MB para Solr	
CPU	4 CPU cores
Almacenamiento	20 GB

<https://wiki.lyrasis.org/display/DSDOC7x/Performance+Tuning+DSpace>

Software usado para la elaboración de la guía

SO Ubuntu 20.04.2 LTS

Backend

Java JDK 11 or 17 (OpenJDK or Oracle JDK)
 Apache Maven 3.3.x or above (Java build tool)
 Apache Ant 1.10.x or later (Java build tool)
 PostgreSQL 11.x, 12.x or 13.x (with pgcrypto installed)
 Apache Solr 8.x (full-text index/search service)
 Servlet Engine (Apache Tomcat 9)

Frontend

Node.js (v14.x or v16.x)
 Yarn (v1.x)
 PM2 (u otro gestor de procesos para aplicaciones Node.js)
 DSpace 7.2 Backend

4.2. Pasos para instalación y configuración

Una vez se cuente con el hardware solicitado, se deberán de ejecutar los pasos en el orden indicado en la presente guía.

Instalacion del Backend

1. Actualizar Ubuntu

```
sudo apt update
sudo apt upgrade -y
```

2. Install Java JDK 11

```
sudo apt install openjdk-11-jdk
java -version
```

3. Instalar Apache Maven and Ant

```
sudo apt-get install ant ant-optional maven -y
mvn -v
ant -version
```

4. Install Postgre

```
sudo apt-get install wget ca-certificates
```

```
wget --quiet -O - https://www.postgresql.org/media/keys/ACCC4CF8.asc | sudo apt-key add -
```

```
sudo sh -c 'echo "deb http://apt.postgresql.org/pub/repos/apt/ `lsb_release -cs`-pgdg main" >>
/etc/apt/sources.list.d/pgdg.list'
```

#Verificar:

```
nano /etc/apt/sources.list.d/pgdg.list
```

```
sudo apt-get update
```

```
sudo apt-get install postgresql-11 postgresql-contrib-11 libpostgresql-jdbc-java -y
```

#Verificar:

```
psql -V
```

#Editar el archivo pg_hba.conf. Agregar la 2da línea y guardar:

```
sudo nano /etc/postgresql/11/main/pg_hba.conf
host dspace dspace 127.0.0.1 255.255.255.255 md5
```

#Verificar:

```
sudo nano /etc/postgresql/11/main/pg_hba.conf
```

#Editar el archivo postgresql.conf. Agregar la 2da línea y guardar:

```
sudo nano /etc/postgresql/11/main/postgresql.conf
listen_addresses = 'localhost'
```

#Verificar:

```
sudo nano /etc/postgresql/11/main/postgresql.conf
```

#Reiniciar PostgreSQL

```
sudo systemctl restart postgresql
```

#Crear el usuario de base de datos dspace, la extensión pgcrypto

#y cambiar la contraseña del usuario dspace.

```
su postgres
```

```
createuser dspace
```

```
createdb dspace -E UNICODE
```

```
psql -d dspace
```

```
CREATE EXTENSION pgcrypto;
```

```
ALTER ROLE dspace WITH PASSWORD 'dspace';
```

```
ALTER DATABASE dspace OWNER TO dspace;
```

```
GRANT ALL PRIVILEGES ON DATABASE dspace TO dspace;
```

```
ALTER USER dspace WITH CREATEDB;
```

#Verificar usuario

```
\du
```

#Verificar Base de datos

```
\l
```

```
\q
```

```
exit
```

```
sudo systemctl restart postgresql
```

#Conectarse a la base de datos dspace y verificar que se hayan creado todas las tablas.

Allow port 5432 through the firewall

To enable traffic on port 5432 through the firewall, execute the following command:

sudo ufw allow 5432/tcp

```

root@sr630-03-i4-dev-ri: /
root@sr630-03-i4-dev-ri: /# ufw status
Status: active

To Action From
--
Apache Full ALLOW Anywhere
OpenSSH ALLOW Anywhere
8000 ALLOW Anywhere
2641 ALLOW Anywhere
Apache Full (v6) ALLOW Anywhere (v6)
OpenSSH (v6) ALLOW Anywhere (v6)
8000 (v6) ALLOW Anywhere (v6)
2641 (v6) ALLOW Anywhere (v6)

root@sr630-03-i4-dev-ri: /# sudo ufw allow 5432/tcp
Rule added
Rule added (v6)
root@sr630-03-i4-dev-ri: /# ufw status
Status: active

To Action From
--
Apache Full ALLOW Anywhere
OpenSSH ALLOW Anywhere
8000 ALLOW Anywhere
2641 ALLOW Anywhere
5432/tcp ALLOW Anywhere
Apache Full (v6) ALLOW Anywhere (v6)
OpenSSH (v6) ALLOW Anywhere (v6)
8000 (v6) ALLOW Anywhere (v6)
2641 (v6) ALLOW Anywhere (v6)
5432/tcp (v6) ALLOW Anywhere (v6)

root@sr630-03-i4-dev-ri: /#

```

#Para poder conectarse a la base de datos desde el [DBeaver](#) se debe configurar el PostgreSQL.

#Agregar esta linea

sudo nano /etc/postgresql/11/main/pg_hba.conf

host all all 0.0.0.0/0 md5

#Agregar esta linea

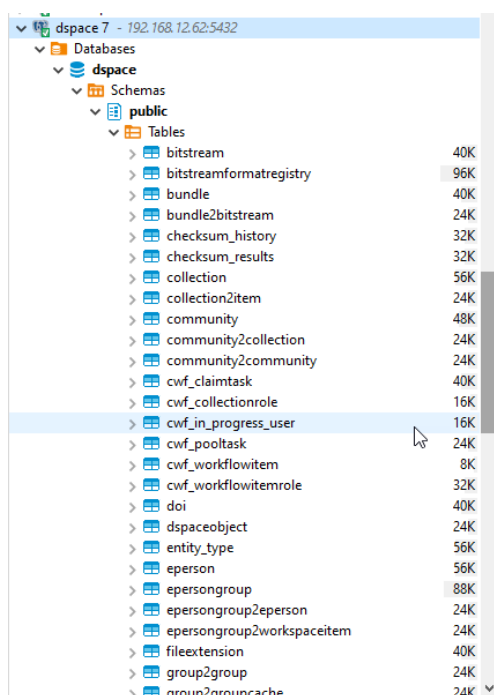
sudo nano /etc/postgresql/11/main/postgresql.conf

listen_addresses = '*'

#Reiniciar PostgreSQL

sudo systemctl restart postgresql

#Ya podemos ingresar a la base de datos dspace usando cualquier cliente para PostgreSQL



5. Crear un usuario en Ubuntu, crear un directorio para la carpeta de instalación (/dspace), crear la carpeta para compilar el código fuente (/build), y carpeta del Solr.

#Crear usuario space del Ubuntu

```
sudo adduser dspace
```

#Crear grupo y agregarlo a ese grupo

```
groups dspace
```

```
usermod -aG sudo dspace
```

#Agregar contraseña

```
sudo passwd dspace
```

#Dar permisos al usuario dspace

```
visudo
```

Agregar la línea y guardar

```
dspace ALL=(ALL:ALL) ALL
```

#Verificar que se haya registrado el usuario dspace

```
cut -d: -f1 /etc/passwd
```

#Crear carpeta de instalación del Dspace

```
sudo mkdir /dspace
```

```
sudo chown -R dspace:dspace /dspace
```

#Crear carpeta para compilación del Dspace

```
sudo mkdir /build
```

```
sudo chmod -R 777 /build
```

```
sudo chown dspace:dspace -R /build
```

#Carpeta para el Solr

```
sudo mkdir /solr
```

6. Instalar Solr

```
#Descargar Solr
cd /solr
sudo wget -c https://d1cdn.apache.org/lucene/solr/8.11.3/solr-8.11.3.tgz
tar xvf solr-8.11.3.tgz
cp -rf /solr/solr-8.11.3/* /solr/
rm -rf solr-8.11.3 solr-8.11.3.tgz

#Establecer como owner de la carpeta de instalación del Solr al usuario dspace
sudo chown -R dspace:dspace /solr

#Iniciar Solr
su dspace
/solr/bin/solr start &
/solr/bin/solr status
```

7. Instalar Tomcat

```
#Creamos el usuario y grupo con el mismo nombre (tomcat)
# https://manpages.ubuntu.com/manpages/xenial/en/man8/useradd.8.html
sudo useradd -m -U -d /opt/tomcat -s /bin/false tomcat

#Crear carpeta del Tomcat
sudo mkdir /opt/tomcat

#Descargar el Tomcat
cd /opt/tomcat
#Ya no existe la URL
#wget https://d1cdn.apache.org/tomcat/tomcat-9/v9.0.64/bin/apache-tomcat-9.0.64.tar.gz
#sudo tar xzvf apache-tomcat-9.0.64.tar.gz
wget https://d1cdn.apache.org/tomcat/tomcat-9/v9.0.86/bin/apache-tomcat-9.0.86.tar.gz
sudo tar xzvf apache-tomcat-9.0.86.tar.gz

cp -rf /opt/tomcat/apache-tomcat-9.0.86/* /opt/tomcat/
rm -rf apache-tomcat-9.0.86 apache-tomcat-9.0.86.tar.gz

#Dar permisos
sudo chgrp -R tomcat /opt/tomcat
cd /opt/tomcat
sudo chmod -R g+r conf
sudo chmod g+x conf
sudo chown -R tomcat webapps/ work/ temp/ logs/

#Modificar el archivo server.xml, y modificar la entrada:
sudo nano /opt/tomcat/conf/server.xml
<Connector port="8080"
    minSpareThreads="25"
    enableLookups="false"
    redirectPort="8443"
```

```
connectionTimeout="20000"
disableUploadTimeout="true"
URIEncoding="UTF-8"/>
```

```
#Iniciar tomcat
sudo /opt/tomcat/bin/startup.sh
```

```
#Verificar acceso al tomcat
http://192.168.12.62:8080/
```

8. Instalar el Backend

```
#Instalar unzip
sudo apt-get install unzip
```

```
#Descargar las fuentes
cd /build/
wget https://github.com/DSpace/DSpace/archive/refs/tags/dspace-7.6.1.zip
unzip dspace-7.6.1.zip
mv /build/DSpace-dspace-7.6.1 /build/dspace-7
rm -fr /build/dspace-7.6.1.zip
```

```
#Crear el archive local.cfg
cd /build/dspace-7/dspace/config
cp local.cfg.EXAMPLE local.cfg
nano local.cfg
```

```
#Verificar que el local.cfg contenga estos valores:
dspace.dir=/dspace
solr.server = http://localhost:8983/solr
db.url = jdbc:postgresql://localhost:5432/dspace
db.driver = org.postgresql.Driver
db.username = dspace
db.password = dspace
```

```
#Compilar
cd /build/dspace-7
mvn -U package
```

```

root@ubuntu: /build/dspace-cris-7
Downloading from central: https://repo.maven.apache.org/maven2/com/jcraft/jsch.agentproxy.sshagent/0.0.9/jsch.agentpr
oxy.sshagent-0.0.9.jar
Downloading from central: https://repo.maven.apache.org/maven2/com/jcraft/jsch.agentproxy.usocket-nc/0.0.9/jsch.agentp
roxy.usocket-nc-0.0.9.jar (5.3 kB at 12 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/com/jcraft/jsch.agentproxy.pageant/0.0.9/jsch.agentpro
xy.pageant-0.0.9.jar
Downloading from central: https://repo.maven.apache.org/maven2/com/jcraft/jsch.agentproxy.sshagent/0.0.9/jsch.agentpro
xy.sshagent-0.0.9.jar (4.3 kB at 8.0 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/com/jcraft/jsch.agentproxy.jsch/0.0.9/jsch.agentproxy.
jsch-0.0.9.jar
Downloading from central: https://repo.maven.apache.org/maven2/com/jcraft/jsch.agentproxy.pageant/0.0.9/jsch.agentprox
y.pageant-0.0.9.jar (7.8 kB at 12 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-interactivity-api/1.0/plexu
s-interactivity-api-1.0.jar
Downloading from central: https://repo.maven.apache.org/maven2/com/jcraft/jsch.agentproxy.jsch/0.0.9/jsch.agentproxy.j
sch-0.0.9.jar (4.4 kB at 6.1 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/wagon/wagon-ssh-common/3.3.4/wagon-ss
h-common-3.3.4.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-interactivity-api/1.0/plexus
-interactivity-api-1.0.jar (9.8 kB at 11 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/wagon/wagon-provider-api/3.3.4/wagon-
provider-api-3.3.4.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/wagon/wagon-ssh-common/3.3.4/wagon-ssh
-common-3.3.4.jar (27 kB at 27 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/net/java/dev/jna/jna/4.1.0/jna-4.1.0.jar (915 kB at 813
kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/wagon/wagon-provider-api/3.3.4/wagon-p
rovider-api-3.3.4.jar (56 kB at 48 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/com/jcraft/jsch/0.1.55/jsch-0.1.55.jar (283 kB at 169 k
B/s)
Downloading from central: https://repo.maven.apache.org/maven2/net/java/dev/jna/jna-platform/4.1.0/jna-platform-4.1.0
.jar (1.5 MB at 536 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/jvnet/wagon-svn/wagon-svn/1.9/wagon-svn-1.9.pom
Downloading from central: https://repo.maven.apache.org/maven2/org/jvnet/wagon-svn/wagon-svn/1.9/wagon-svn-1.9.pom (2
.3 kB at 12 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/jvnet/wagon-svn/wagon-svn/1.9/wagon-svn-1.9.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/jvnet/wagon-svn/wagon-svn/1.9/wagon-svn-1.9.jar (20
kB at 99 kB/s)
[INFO] Copying files to /build/dspace-cris-7/dspace/target/dspace-installer
[INFO] -----
[INFO] Reactor Summary for DSpace Parent Project cris-2022.01.01:
[INFO]
[INFO] DSpace Parent Project ..... SUCCESS [ 0.893 s]
[INFO] DSpace Services Framework :: API and Implementation SUCCESS [ 6.040 s]
[INFO] DSpace Kernel :: API and Implementation ..... SUCCESS [04:50 min]
[INFO] DSpace Addon Modules ..... SUCCESS [ 0.133 s]
[INFO] DSpace Kernel :: Additions and Local Customizations SUCCESS [ 9.283 s]
[INFO] DSpace IIIF ..... SUCCESS [ 28.524 s]
[INFO] DSpace OAI-PMH ..... SUCCESS [ 24.239 s]
[INFO] DSpace RDF ..... SUCCESS [ 2.189 s]
[INFO] DSpace SWORD ..... SUCCESS [ 7.001 s]
[INFO] DSpace SWORD v2 ..... SUCCESS [ 7.115 s]
[INFO] DSpace Server Webapp ..... SUCCESS [01:37 min]
[INFO] DSpace Server Webapp:: Local Customizations ..... SUCCESS [ 43.690 s]
[INFO] DSpace Assembly and Configuration ..... SUCCESS [04:02 min]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 12:40 min
[INFO] Finished at: 2022-07-19T16:53:58Z
[INFO] -----
root@ubuntu: /build/dspace-cris-7#

```

#Usar el ant para realizar el despliegue en la carpeta de instalación (/dspace)
 cd /build/dspace-7/dspace/target/dspace-installer
 ant fresh_install

```

root@ubuntu: /build/dspace-cris-7/dspace/target/dspace-installer

[java] Database URL: jdbc:postgresql://localhost:5432/dspace
[java] Database Schema: public
[java] Database Username: dspace
[java] Database Software: PostgreSQL version 11.16 (Ubuntu 11.16-1.pgdg22.04+1)
[java] Database Driver: PostgreSQL JDBC Driver version 42.3.3
[java] PostgreSQL 'pgcrypto' extension installed/up-to-date? true (version=1.3)
[java] FlywayDB Version: 6.5.7
[java] 2022-07-19 17:00:05,689 WARN org.dspace.services.sessions.StatelessRequestServiceImpl @ Request Interceptor (org.dspace.services.events.SystemEventService$EventRequestInterceptor@7cb796b6) failed to execute on end (request=977-1658250004907): null

install_code:
[copy] Copying 6 files to /dspace/bin
[copy] Copying 415 files to /dspace/lib
[copy] Copying 68 files to /dspace/solr
[echo]
[echo] =====
[echo] The DSpace code has been installed.
[echo] =====
[echo]

fresh_install:

copy_webapps:
[copy] Copying 1289 files to /dspace/webapps
[copy] Copying 1 file to /dspace/webapps

build_webapps_wars:

check_spiders:

init_spiders:
[echo]
[echo] =====
[echo] The DSpace code has been installed.
[echo]
[echo] To complete installation, you should do the following:
[echo]
[echo] * Setup your Web servlet container (e.g. Tomcat) to look for your
[echo]   DSpace web applications in: /dspace/webapps/
[echo]
[echo] OR, copy any web applications from /dspace/webapps/ to
[echo]   the appropriate place for your servlet container.
[echo]   (e.g. '$CATALINA_HOME/webapps' for Tomcat)
[echo]
[echo] * Start up your servlet container (e.g. Tomcat). DSpace now will
[echo]   initialize the database on the first startup.
[echo]
[echo] * Make an initial administrator account (an e-person) in DSpace:
[echo]
[echo]   /dspace/bin/dspace create-administrator
[echo]
[echo] You should then be able to access your DSpace's REST API:
[echo]
[echo]   http://localhost:8080/server
[echo]
[echo] =====
[echo]

BUILD SUCCESSFUL
Total time: 6 seconds
root@ubuntu: /build/dspace-cris-7/dspace/target/dspace-installer#

```

NOTA: Importante... verificar que la carpeta de instalación tenga como owner al usuario dspace
 Si no está así cambiar:
 sudo chown -R dspace:dspace /dspace
 Si no es el owner el usuario dspace se genera un error con el solr:

```

root@ubuntu:/dspace/log# tail -f dspace.log
"error":{
  "metadata":[
    "error-class","org.apache.solr.core.SolrCoreInitializationException",
    "root-error-class","java.nio.file.AccessDeniedException"],
    "msg":"SolrCore 'search' is not available due to init failure: java.nio.file.AccessDeniedException:
/solr/server/solr/configsets/search/data",
    "trace":"org.apache.solr.core.SolrCoreInitializationException: SolrCore 'search' is not available due
to init failure: java.nio.file.AccessDeniedException: /solr/server/solr/configsets/search/data\n\tat
org.apache.solr.core.CoreContainer.getCore(CoreContainer.java:1977)\n\tat
org.apache.solr.core.CoreContainer.getCore(CoreContainer.java:1950)\n\tat
org.apache.solr.servlet.HttpSolrCall.init(HttpSolrCall.java:254)\n\tat
org.apache.solr.core.SolrCore.initSnapshotMetaDataManager(SolrCore.java:553)\n\t... 10 more\n",

```

"code":500}}

9. Desplegar el backend en el Tomcat.

```
#Copiando el backend al tomcat
cd /opt/tomcat/webapps
sudo cp -r /dspace/webapps/* /opt/tomcat/webapps
#Dar permisos al usuario tomcat sobre la carpeta /opt/tomcat/webapps
sudo chown -R tomcat:tomcat *
```

10. Copiar los nucleos de Solr, y reiniciar Solr

```
#Copiar nucleos
su dspace
sudo cp -r /dspace/solr/* /solr/server/solr/configsets
```

```
#Verficar que el contenido de la carpeta configsets tiene como owner al usuario dspace, así como
#también verificar que toda la carpeta solr tenga como owner al usuario dspace.
#Si no está asi, aplicar el comando:
sudo chown -R dspace:dspace /solr
```

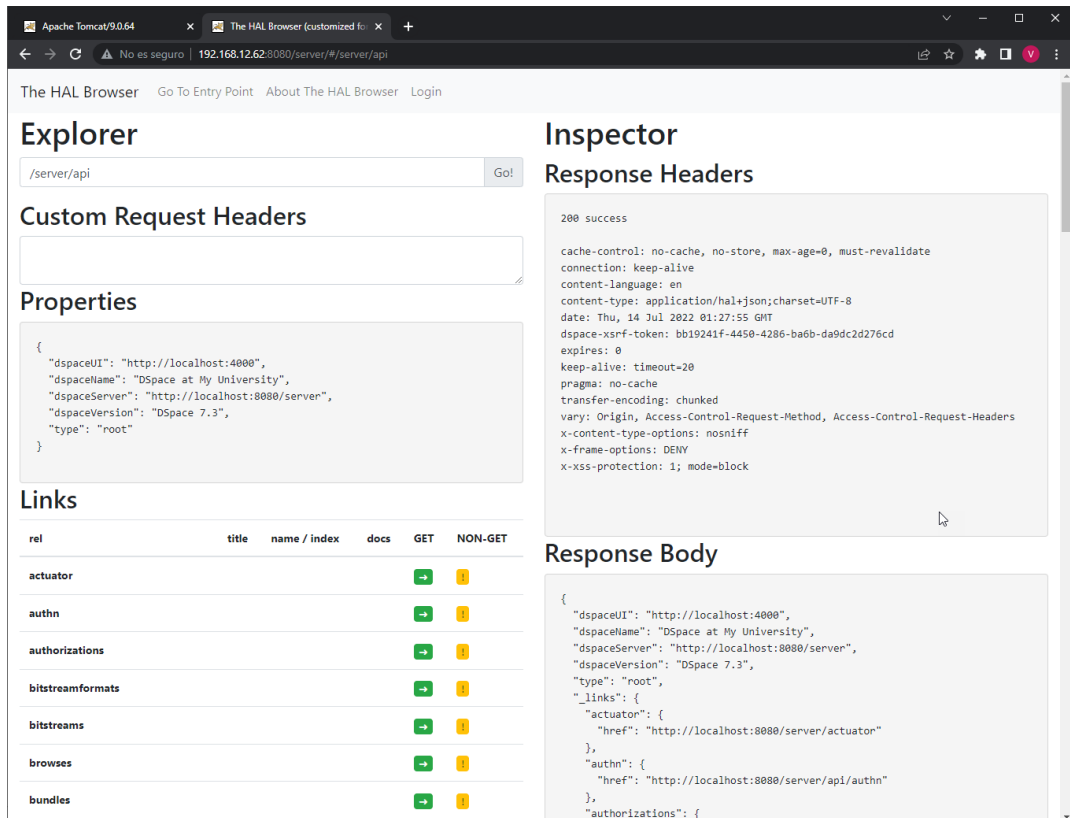
```
#Reiniciar el Solr
su dspace
/solr/bin/solr restart &
/solr/bin/solr status
```

```
#Para detener el solr
#/solr/bin/solr stop
```

11. Reiniciar el Tomcat

```
#Reiniciar
sudo -s
sudo /opt/tomcat/bin/shutdown.sh
sudo /opt/tomcat/bin/startup.sh
```

```
#Probar acceso
http://192.168.12.51:8080/server
```



The HAL Browser interface displays the following information:

- Explorer:** Shows the URL `/server/api` and a "Go!" button.
- Custom Request Headers:** An empty text area for adding headers.
- Properties:** A JSON object representing the API configuration:


```
{
  "dspaceUI": "http://localhost:4000",
  "dspaceName": "DSpace at My University",
  "dspaceServer": "http://localhost:8080/server",
  "dspaceVersion": "DSpace 7.3",
  "type": "root"
}
```
- Links:** A table listing API endpoints with their relative URLs, titles, and GET/POST methods.

rel	title	name / index	docs	GET	NON-GET
actuator				→	→
authn				→	→
authorizations				→	→
bitstreamformats				→	→
bitstreams				→	→
browses				→	→
bundles				→	→
- Inspector - Response Headers:** A list of headers for a 200 success response, including `cache-control`, `content-type`, `date`, `expires`, `keep-alive`, `pragma`, `transfer-encoding`, `vary`, `x-content-type-options`, `x-frame-options`, and `x-xss-protection`.
- Response Body:** A JSON object representing the API response:


```
{
  "dspaceUI": "http://localhost:4000",
  "dspaceName": "DSpace at My University",
  "dspaceServer": "http://localhost:8080/server",
  "dspaceVersion": "DSpace 7.3",
  "type": "root",
  "_links": {
    "actuator": {
      "href": "http://localhost:8080/server/actuator"
    },
    "authn": {
      "href": "http://localhost:8080/server/api/authn"
    },
    "authorizations": {

```

NOTA

Se debe cambiar el valor **localhost** por la IP del servidor en el archivo `/dspace/config/local.cfg`, esto para el atributo **dspace.server.url**.

El backend puede funcionar usando el valor **localhost**, pero cuándo si despliega el frondend y se sigue haciendo referencia a **localhost** en el atributo **dspace.server.url**, las peticiones realizadas desde el frontend no van a encontrar el backend.

Por eso se antes de desplegar el frontend se debe realizar cambiar el valor **localhost** por la IP del servidor.

Antes

`dspace.server.url = http://localhost:8080/server`

Después

`dspace.server.url = http://192.168.12.62:8080/server`

```

26 #####
27 # SERVER CONFIGURATION #
28 #####
29
30 # DSpace installation directory.
31 # This is the location where you want to install DSpace.
32 # Windows note: Please remember to use forward slashes for all paths (e.g. C:/dspace)
33 dspace.dir=/dspace
34
35 # URL of DSpace backend ('server' webapp). Include port number etc.
36 # DO NOT end it with '/'.
37 # This is where REST API and all enabled server modules (OAI-PMH, SWORD,
38 # SWORDv2, RDF, etc) will respond.
39 #dspace.server.url = http://localhost:8080/server
40 dspace.server.url = http://192.168.12.62:8080/server
41
42 # URL of DSpace frontend (Angular UI). Include port number etc.
43 # DO NOT end it with '/'.
44 # This is used by the backend to provide links in emails, RSS feeds, Sitemaps,
45 # etc.
46 dspace.ui.url = http://192.168.12.62:4000
47

```

Instalacion del Frontend

12. Instalar nvm

```

sudo apt install curl
curl https://raw.githubusercontent.com/creationix/nvm/master/install.sh | bash

```

#Se debe cerrar el terminar y abrir otro nuevo para proseguir

```

#Verificar la versión
nvm --version

```

```

#Instalar nvm
nvm install node

```

13. Instalar yarn

```

curl -sS https://dl.yarnpkg.com/debian/pubkey.gpg | sudo apt-key add -
echo "deb https://dl.yarnpkg.com/debian/ stable main" | sudo tee /etc/apt/sources.list.d/yarn.list

```

```

#Verificar que se haya agregado la línea en el paso anterior
nano /etc/apt/sources.list.d/yarn.list

```

```

#Actualizar el ubuntu
sudo apt update

```

```

#Instalado yarn
sudo apt install yarn

```

```

#Verificar la version
yarn --version

```

14. Instalar Node.js

```

cd /
sudo -s

#Actualizar el ubuntu
sudo apt update

#Descargar e instalar NVM
curl -o- https://raw.githubusercontent.com/nvm-sh/nvm/v0.35.3/install.sh | bash

#Verificar la version del NVM (Node Version Manager)
nvm --version

#Instalar Node
nvm install node

#Verificar la version
node -v

#Instalar la version actual LTS (long-term support) de Node.js
nvm install --lts

#Listar las versiones de Node.js
nvm ls

#Instalar la version del Node.js que usa esta version del Dspace 7
nvm install 16.18.0

#Listar las versiones de Node.js y verificar que este la version 16
nvm ls

#Establecer la version 16
nvm use v16.18.0

#Verificar la version
node -v

```

15. Descargar las fuentes del Frontend e instalar las dependencias

```

#Crear la carpeta para la compilación build-ui
cd /
mkdir build-ui

#DSpace-CRIS 7
cd /build-ui
wget https://github.com/DSpace/dspace-angular/archive/refs/tags/dspace-7.6.1.zip
unzip dspace-7.6.1.zip

```

```
cp -rf /build-ui/dspace-angular-dspace-7.6.1/* /build-ui/
rm -rf dspace-angular-dspace-7.6.1 dspace-7.6.1.zip
```

#Construir las dependencias del frontend

cd /build-ui

yarn install

```
root@ubuntu: /dspace-ui
root@ubuntu:/dspace-ui# cp -rf /dspace-ui/dspace-angular-dspace-7.2/* /dspace-ui/
root@ubuntu:/dspace-ui# rm -rf dspace-angular-dspace-7.2 dspace-7.2.tar.gz
root@ubuntu:/dspace-ui# cd /dspace-ui
root@ubuntu:/dspace-ui# yarn install
yarn install v1.22.19
[1/4] Resolving packages...
[2/4] Fetching packages...
[3/4] Linking dependencies...
warning " > @kolkov/ngx-gallery@1.2.3" has incorrect peer dependency "tslib@^1.9.3".
warning " > @ng-dynamic-forms/ui-ng-bootstrap@13.0.0" has incorrect peer dependency "@ng-bootstrap/ng-bootstrap@^8.0.0".
warning " > @nicky-lenaers/ngx-scroll-to@9.0.0" has incorrect peer dependency "@angular/common@^8.0.0 || ^9.0.0".
warning " > @nicky-lenaers/ngx-scroll-to@9.0.0" has incorrect peer dependency "@angular/core@^8.0.0 || ^9.0.0".
warning " > @nicky-lenaers/ngx-scroll-to@9.0.0" has incorrect peer dependency "tslib@^1.10.0".
warning " > bootstrap@4.3.1" has unmet peer dependency "jquery@1.9.1 - 3".
warning " > bootstrap@4.3.1" has unmet peer dependency "popper.js@^1.14.7".
warning "mirador > react-image@4.0.3" has unmet peer dependency "@babel/runtime@>7".
warning " > mirador-dl-plugin@0.13.0" has unmet peer dependency "@material-ui/core@^4.11.0".
warning " > mirador-dl-plugin@0.13.0" has unmet peer dependency "@material-ui/icons@^4.9.1".
warning " > mirador-dl-plugin@0.13.0" has unmet peer dependency "prop-types@^15.7.2".
warning " > mirador-share-plugin@0.11.0" has unmet peer dependency "@material-ui/core@^4.7.2".
warning " > mirador-share-plugin@0.11.0" has unmet peer dependency "@material-ui/icons@^4.5.1".
warning " > mirador-share-plugin@0.11.0" has unmet peer dependency "prop-types@^15.7.2".
warning " > mirador-share-plugin@0.11.0" has unmet peer dependency "react-copy-to-clipboard@^5.0.1".
warning " > postcss-cli@8.3.1" has unmet peer dependency "postcss@^8.0.0".
warning "postcss-cli > postcss-reporter@7.0.4" has unmet peer dependency "postcss@^8.1.0".
warning "@angular-builders/custom-webpack > @angular-devkit/build-angular@0.1002.3" has incorrect peer dependency "@angular/compiler-cli@^10.0.0".
warning " > @ngtools/webpack@10.2.3" has incorrect peer dependency "@angular/compiler-cli@^10.0.0".
warning " > karma-jasmine-html-reporter@1.7.0" has incorrect peer dependency "jasmine-core@>3.8".
[4/4] Building fresh packages...
Done in 132.36s.
root@ubuntu:/dspace-ui#
```

sudo -s

#Establecer como owner de la carpeta /build-ui al usuario root
chown root:root -R /build-ui

#Generar el compilado (Debe ejecutarse con el usuario dspace)

cd /build-ui

Puede que se genere un error al ejecutar **yarn build:prod**

#en ese caso instale el npm: sudo apt install npm

yarn build:prod

#Se genera la carpeta /dist

NOTA : Puede solicitar que se instale el npm: sudo apt install npm

```
dspace@ubuntu:/build-ui
t-page-module) 1.12 MiB <(33)> <(0)> <(1)> <(2)> <(3)> <(4)> <(5)> <(7)> <(21)> <(28)> <(34)> <(45)> <(4)> [rendered]
chunk (47) 47.js 62 KiB <(0)> <(1)> <(2)> <(3)> <(4)> <(5)> <(7)> <(21)> <(28)> <(34)> <(45)> <(4)> [rendered]
chunk (48) 48.js 11.6 KiB <(33)> [rendered]
chunk (49) 49.js 1.98 KiB <(0)> <(1)> <(2)> <(13)> [rendered]
chunk (50) 50.js 9.44 KiB <(33)> [rendered]
chunk (51) 51.js 18.6 KiB <(0)> <(1)> <(2)> <(3)> <(15)> [rendered]
chunk (52) 52.js 2.23 KiB <(16)> [rendered]
chunk (53) 53.js 14.2 KiB <(16)> [rendered]
chunk (54) 54.js 14.8 KiB <(0)> <(1)> <(2)> <(3)> <(17)> [rendered]
chunk (55) 55.js 16.5 KiB <(33)> [rendered]
chunk (56) 56.js 7.17 KiB <(33)> [rendered]
chunk (57) 57.js 6.04 KiB <(0)> <(1)> <(2)> <(4)> <(23)> [rendered]
chunk (58) 58.js 10.2 KiB <(0)> <(1)> <(2)> <(4)> <(23)> [rendered]
chunk (59) 59.js 6.72 KiB <(33)> [rendered]
chunk (60) 60.js 9.19 KiB <(33)> [rendered]
chunk (61) 61.js 10.1 KiB <(0)> <(4)> <(5)> <(24)> [rendered]
chunk (62) 62.js 14.7 KiB <(0)> <(4)> <(5)> <(24)> [rendered]
chunk (63) 63.js 9.45 KiB <(26)> [rendered]
chunk (64) 64.js 5.86 KiB <(26)> [rendered]
chunk (65) 65.js 5.88 KiB <(26)> [rendered]
chunk (66) 66.js 16 KiB <(0)> <(1)> <(2)> <(3)> <(28)> <(45)> [rendered]
chunk (67) 67.js 8.4 KiB <(33)> [rendered]
chunk (68) 68.js 12.1 KiB <(0)> <(1)> <(2)> <(3)> <(28)> <(45)> [rendered]
chunk (69) 69.js 7.11 KiB <(29)> [rendered]
chunk (70) 70.js 6.84 KiB <(30)> [rendered]
chunk (71) 71.js 7.24 KiB <(31)> [rendered]
chunk (72) 72.js 9.52 KiB <(33)> [rendered]
chunk (73) 73.js 7.31 KiB <(33)> [rendered]
chunk (74) 74.js 13.9 KiB <(0)> <(1)> <(2)> <(4)> <(23)> <(36)> <(37)> [rendered]
chunk (75) 75.js 23.5 KiB <(0)> <(1)> <(2)> <(4)> <(37)> [rendered]
chunk (76) 76.js 10.3 KiB <(33)> [rendered]
chunk (77) 77.js 25.9 KiB <(0)> <(1)> <(2)> <(3)> <(4)> <(5)> <(6)> <(7)> <(8)> <(9)> <(12)> <(13)> <(15)> <(17)> <(20)> <(21)> <(23)> <(24)> <(25)> <(28)> <(32)> <(34)> <(36)> <(37)> <(39)> <(41)> <(43)> <(45)> <(46)> [rendered]
chunk (78) 78.js 2.35 KiB <(0)> <(1)> <(2)> <(3)> <(15)> <(28)> <(39)> <(45)> [rendered]
chunk (79) 79.js 6.37 KiB <(40)> <(44)> [rendered]
chunk (80) 80.js 6.35 KiB <(40)> <(44)> [rendered]
chunk (81) 81.js 6.24 KiB <(40)> <(44)> [rendered]
chunk (82) 82.js 6.24 KiB <(40)> <(44)> [rendered]
chunk (83) 83.js 6.6 KiB <(0)> <(1)> <(2)> <(3)> <(20)> <(25)> <(29)> <(41)> <(45)> <(46)> [rendered]
chunk (84) 84.js 17.4 KiB <(0)> <(1)> <(2)> <(3)> <(20)> <(25)> <(29)> <(41)> <(45)> <(46)> [rendered]
chunk (85) 85.js 5.69 KiB <(0)> <(1)> <(2)> <(3)> <(20)> <(25)> <(28)> <(41)> <(45)> <(46)> [rendered]
chunk (86) 86.js 4.21 KiB <(0)> <(1)> <(2)> <(3)> <(45)> [rendered]
chunk (87) 87.js 4.28 KiB <(0)> <(1)> <(2)> <(3)> <(45)> [rendered]
chunk (88) 88.js 6.2 KiB <(33)> [rendered]
chunk (89) 89.js 9.12 KiB <(33)> [rendered]
chunk (90) 90.js 12.2 KiB <(0)> <(4)> <(5)> <(24)> [rendered]
chunk (91) 91.js 11 KiB <(33)> [rendered]

WARNING in ./node_modules/pem/lib/pem.js 607:26-39
Critical dependency: the request of a dependency is an expression

WARNING in /build-ui/src/themes/custom/app/register-page/register-email/register-email.component.ts is part of the TypeScript compilation but it's unused.
Add only entry points to the 'files' or 'include' properties in your tsconfig.

WARNING in /build-ui/src/themes/custom/theme.module.ts is part of the TypeScript compilation but it's unused.
Add only entry points to the 'files' or 'include' properties in your tsconfig.

WARNING in /build-ui/src/themes/dspace/theme.module.ts is part of the TypeScript compilation but it's unused.
Add only entry points to the 'files' or 'include' properties in your tsconfig.

Done in 834.65s.
dspace@ubuntu:/build-ui$
```

16. Crear la carpeta de publicación e iniciar la aplicación

#Crear carpeta de publicacion

su dspace

cd /

sudo mkdir dspace-ui

#Copiar el compilado a la carpeta de publicación.

sudo cp -r /build-ui/dist /dspace-ui

#Agregar el archivo yml para configurar los endpoints del frontend y backend.

cd /dspace-ui

sudo mkdir config

sudo cp -r /build-ui/config/* /dspace-ui/config

cd config/

sudo cp config.example.yml config.prod.yml

nano /dspace-ui/config/config.prod.yml

#Borrar todo el contenido del archivo /dspace-ui/config/config.prod.yml, copiar lo siguiente previa actualización de las IPs según corresponda:

NOTE: will log all redux actions and transfers in console
debug: false

Angular Universal server settings

NOTE: these must be 'synced' with the 'dspace.ui.url' setting in your backend's local.cfg.

ui:

ssl: false

host: 192.168.1.6

port: 4000

NOTE: Space is capitalized because 'namespace' is a reserved string in TypeScript

nameSpace: /

The rateLimiter settings limit each IP to a 'max' of 500 requests per 'windowMs' (1 minute).

rateLimiter:

windowMs: 60000 # 1 minute

max: 500 # limit each IP to 500 requests per windowMs

The REST API server settings

NOTE: these must be 'synced' with the 'dspace.server.url' setting in your backend's local.cfg.

rest:

ssl: false

host: 192.168.1.6

port: 8080

NOTE: Space is capitalized because 'namespace' is a reserved string in TypeScript

nameSpace: /server

#Verificar en la carpeta de instalación (/dspace), en el archivo /dspace/config/local.cfg, que el atributo **dspace.ui.url** contenga como valor la URL exacta del frontend. Sino al ejecutar el frontend va a salir el error de cors.

```

41 # URL of DSpace frontend (Angular UI). Include port number etc.
42 # DO NOT end it with '/'.
43 # This is used by the backend to provide links in emails, RSS feeds, Sitemaps,
44 # etc.
45 dspace.ui.url = http://192.168.12.62:4000/
46

```

#Si se modifica el local.cfg se deber reiniciar el tomcat

sudo /opt/tomcat/bin/shutdown.sh

sudo /opt/tomcat/bin/startup.sh

#Probar el frontend a modo de prueba

sudo -s

cd /dspace-ui

node ./dist/server/main.js

#Validar

<http://192.168.5.87:4000/>

#Detener el frontend pulsando las teclas: Ctrl+C

17. Instalar el PM2 (Process Manager for Node.js apps) para un mejor control del inicio y detención del frontend

```
#Verificar la version
node -v
```

```
#Establecer la version 16
nvm use v16.18.0
```

```
#Verificar la version
node -v
```

```
#Instalar PM2
sudo npm install pm2 -g
```

```
#Crear el archivo de configuración para el PM2
su dspace
sudo nano /dspace-ui/dspace-ui.json
```

```
#Pegar contenido
{
  "apps": [
    {
      "name": "dspace-ui",
      "cwd": "/dspace-ui",
      "script": "dist/server/main.js",
      "env": {
        "NODE_ENV": "production"
      }
    }
  ]
}
```

```
#Verificar que toda la carpeta /dspace-ui tenga como owner al usuario dspace, sino aplicar:
sudo -s
chown dspace:dspace -R /dspace-ui
```

```
#Importante... verificar que la carpeta de instalación tenga como owner al usuario dspace
#Si no esta asi cambiar:
sudo -s
chown -R dspace:dspace /dspace
#Si no es el owner el usuario dspace de la carpeta de instalación (/dspace) se genera un error con el
#solr, el error se detalla mas abajo
```

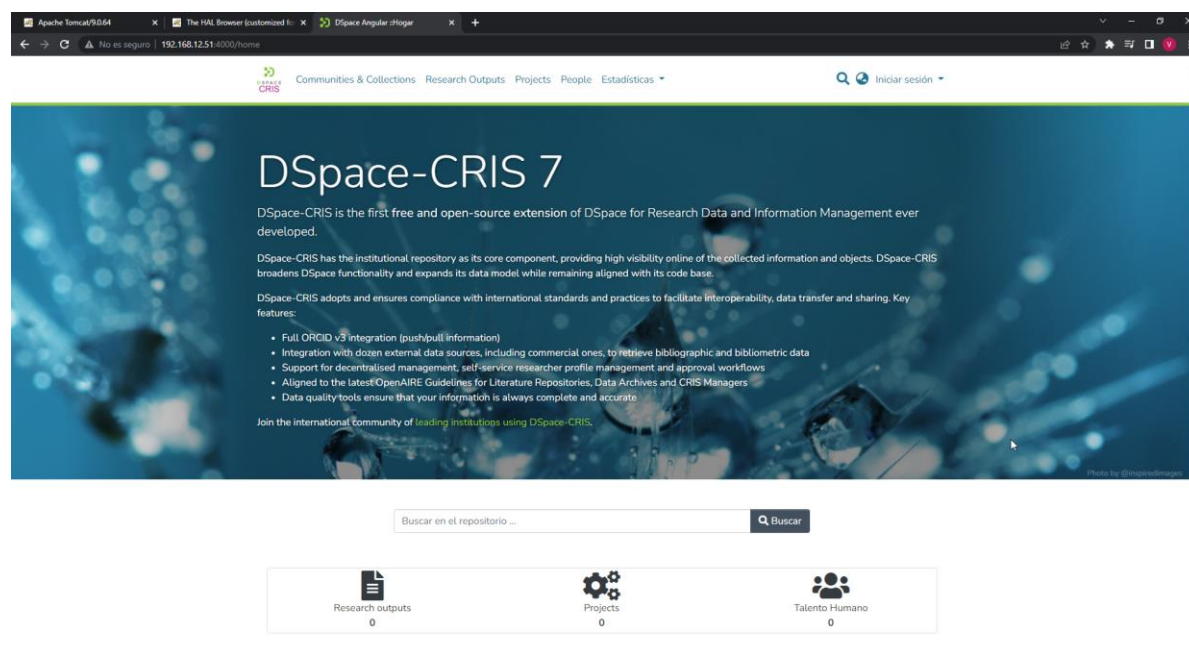
```
# Iniciar la aplicacion
su -s
cd /dspace-ui
pm2 start dspace-ui.json
```



```
"error-class","org.apache.solr.core.SolrCoreInitializationException",
"root-error-class","java.nio.file.AccessDeniedException"],
"msg":"SolrCore 'search' is not available due to init failure: java.nio.file.AccessDeniedException:
/solr/server/solr/configsets/search/data",
"trace":"org.apache.solr.core.SolrCoreInitializationException: SolrCore 'search' is not available due
to init failure: java.nio.file.AccessDeniedException: /solr/server/solr/configsets/search/data\n\tat
org.apache.solr.core.CoreContainer.getCore(CoreContainer.java:1977)\n\tat
org.apache.solr.core.CoreContainer.getCore(CoreContainer.java:1950)\n\tat
org.apache.solr.servlet.HttpSolrCall.init(HttpSolrCall.java:254)\n\tat
org.apache.solr.core.SolrCore.initSnapshotMetaDataManager(SolrCore.java:553)\n\t... 10 more\n",
"code":500}}
```

#Validar

<http://192.168.5.87:4000/>



#Crear usuario administrador:

sudo /dspace/bin/dspace create-administrator

Email: dspace@localhost

Password: 123456