

Ejercicios Tema 2

Instalación, configuración y documentación del entorno de desarrollo y del entorno de explotación

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Especificaciones del entorno

Nombre	das-used
Sistema Operativo	Ubuntu Server 22.04 LTS
Memoria RAM	4GB
Discos y particiones	1 disco de 500 GB dividido en 3 particiones <ul style="list-style-type: none">• 150GB /• 4GB swap• 346GB /var
Usuario/password	Miadmin/paso Operadorweb/paso
Software	Apache PHP Xdebug
Configuración de red	IP 192.168.3.208/24 Gateway 192.168.3.1 DNS 192.168.20.20 8.8.8.8

Nombre	Das_wxed
Sistema Operativo	Windows 10 Professional
Discos y Particiones	1 disco de 500GB dividido en 2 particiones <ul style="list-style-type: none">• C:\150GB• D:\350GB
Software	

Entorno de Desarrollo

Hostname

```
miadmin@das-used: /etc/php/8.1/apache2/conf.d$ hostname  
das-used
```

Visualizar versión del sistema

Lsb_release -a

```
miadmin@das-used:~$ lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description:   Ubuntu 22.04.1 LTS
Release:      22.04
Codename:     jammy
```

Cat /etc/issue

```
miadmin@das-used:~$ cat /etc/issue
Ubuntu 22.04.1 LTS \n \l
```

Hostnamectl

```
miadmin@das-used:~$ hostnamectl
Static hostname: das-used
          Icon name: computer-vm
          Chassis: vm
          Machine ID: f0673efc4c0e4482b3bb72ef471eec0c
          Boot ID: 2356e3643532498fad559b1dec36ec3a
Virtualization: oracle
Operating System: Ubuntu 22.04.1 LTS
          Kernel: Linux 5.15.0-48-generic
          Architecture: x86-64
Hardware Vendor: innotek GmbH
Hardware Model: VirtualBox
```

Comprobar particiones

Fdisk -l

```
miadmin@das-used:~$ sudo fdisk -l
[sudo] password for miadmin:
Disk /dev/loop0: 63,22 MiB, 66293760 bytes, 129480 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop1: 79,95 MiB, 83832832 bytes, 163736 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop2: 102,98 MiB, 107986944 bytes, 210912 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop3: 61,96 MiB, 64970752 bytes, 126896 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop4: 46,96 MiB, 49242112 bytes, 96176 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop5: 47,98 MiB, 50315264 bytes, 98272 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/sda: 500 GiB, 536870912000 bytes, 1048576000 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: gpt
Disk identifier: 194E989A-0A61-4308-8075-357DE90E504E

Device            Start      End    Sectors  Size Type
/dev/sda1         2048      4095      2048    1M BIOS boot
/dev/sda2         4096 314576895 314572800 150G Linux filesystem
/dev/sda3       314576896 322965503   8388608    4G Linux swap
/dev/sda4       322965504 1048573951 725608448 346G Linux filesystem
```

lsblk

```
miadmin@das-used:~$ lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0       7:0      0 63,2M  1 loop /snap/core20/1623
loop1       7:1      0 79,9M  1 loop /snap/lxd/22923
loop2       7:2      0 103M   1 loop /snap/lxd/23541
loop3       7:3      0 62M    1 loop /snap/core20/1587
loop4       7:4      0 47M    1 loop /snap/snapd/16292
loop5       7:5      0 48M    1 loop /snap/snapd/17029
sda         8:0      0 500G   0 disk
├─sda1      8:1      0 1M     0 part
├─sda2      8:2      0 150G   0 part /
├─sda3      8:3      0 4G     0 part [SWAP]
└─sda4      8:4      0 346G   0 part /var
sr0         11:0     1 1024M  0 rom
```

Comprobamos ip

Ip a

```
miadmin@das-used:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:dc:64:66 brd ff:ff:ff:ff:ff:ff
    inet 192.168.3.208/24 brd 192.168.3.255 scope global enp0s3
        valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fedc:6466/64 scope link
        valid_lft forever preferred_lft forever
```

Comprobar ruta

Ip r

```
miadmin@das-used:~$ ip r
default via 192.168.3.1 dev enp0s3 proto static
192.168.3.0/24 dev enp0s3 proto kernel scope link src 192.168.3.208
```

Comprobar dns

Resolvectl status

```
miadmin@das-used:~$ resolvectl status
Global
    Protocols: -LLMNR -mDNS -DNSOverTLS DNSSEC=no/unsupported
    resolv.conf mode: stub

Link 2 (enp0s3)
    Current Scopes: DNS
    Protocols: +DefaultRoute +LLMNR -mDNS -DNSOverTLS DNSSEC=no/unsupported
    Current DNS Server: 8.8.8.8
    DNS Servers: 192.162.20.20 8.8.8.8
miadmin@das-used:~$
```

Apache

Descargamos apache2

`sudo apt-get install apache2`

Crear usuario operadorweb

El home es `/var/www/html`

Pertenece al grupo `www-data`

Contraseña paso

Comandos creacion usuario

`Sudo useradd -d /var/www/html -g www-data operadorweb`

`Sudo passwd operadorweb`

Introducir nueva contraseña

Visualizar fichero `/etc/passwd`

En el fichero `/etc/passwd` se encuentran todos los usuarios aunque en nuestro caso solo necesitamos visualizar el usuario `operadorweb`

```
miadmin@dass-used:~$ cat /etc/passwd | grep operadorweb
operadorweb:x:1001:33:./var/www/html:/bin/sh
```

Cambiar propietario `/var/www/html`

Cambiamos el propietario que ahora será el usuario `operadorweb` y el grupo `www-data` de la carpeta `/var/www/html` recursivamente con el comando abajo escrito

`Sudo chown -R operadorweb:www-data /var/www/html`

Cambiar permisos `/var/www/html`

Cambiamos los permisos de la carpeta `/var/www/html` recursivamente con el comando abajo escrito tiene permisos totales el usuario propietario y el grupo propietario, el resto solo tienen permisos de lectura y ejecución (775) el 2 es el bit pegajoso(sticky bit) Su objetivo es que solo el usuario creador pueda eliminar o renombrar un archivo en sistemas donde todos los usuarios tienen permisos de lectura y escritura

`Sudo chmod -R 2775 /var/www/html`

Bit pegajoso

Tiene 2 valores 01 o 10 1 o 2 en octal

```
miadmin@dass-used:~$ sudo chmod -R 2775 /var/www/html
miadmin@dass-used:~$ ls -l /var/www
total 4
drwxrwsr-x 2 operadorweb www-data 4096 sep 29 09:33 html
```


PHP

Instalación php

Para la instalación de php en el servidor utilizaremos `sudo apt install php`

```
miadmin@das-used:~$ sudo apt install php
```

Comprobar versión php

Para comprobar la version de php en el servidor utilizaremos `php -v`

```
miadmin@das-used:~$ php -v
PHP 8.1.2 (cli) (built: Aug  8 2022 07:28:23) (NTS)
Copyright (c) The PHP Group
Zend Engine v4.1.2, Copyright (c) Zend Technologies
    with Zend OPcache v8.1.2, Copyright (c), by Zend Technologies
```

Comprobamos la estructura del directorio PHP ubicado en `/etc/php`

```
miadmin@das-used:~$ tree -d /etc/php
/etc/php
├── 8.1
│   ├── apache2
│   │   └── conf.d
│   ├── cli
│   │   └── conf.d
│   └── mods-available
6 directories
```

Uso apt-cache

`apt-cache show modulo`

```
miadmin@das-used:~$ apt-cache show xdebug
N: No se ha podido localizar el paquete xdebug
E: No se encontró ningún paquete
```

Para comprobar si existe un modulo de PHP en especifico utilizaremos el comando

`apt-cache search modulo`

```
miadmin@das-used:~$ apt-cache search xdebug
php-xdebug - Xdebug Module for PHP
php-xdebug-all-dev - Xdebug Module for PHP
php8.1-xdebug - Xdebug Module for PHP
php-composer-xdebug-handler - Restarts a process without Xdebug
```

Configurar php.ini

Configuracion inicial

Antes de empezar a programar necesitamos configurar el fichero

`/etc/php/8.1/apache2/php.ini`

Hacemos una copia de seguridad del fichero `/etc/php/8.1/apache2/php.ini`

```
miadmin@das-used:~$ sudo cp /etc/php/8.1/apache2/php.ini /etc/php/8.1/apache2/php.ini.backup
[sudo] password for miadmin:
miadmin@das-used:~$ ls -l /etc/php/8.1/apache2
total 148
drwxr-xr-x 2 root root 4096 oct 11 15:33 conf.d
-rw-r--r-- 1 root root 72928 ago 8 07:28 php.ini
-rw-r--r-- 1 root root 72928 oct 11 16:06 php.ini.backup
miadmin@das-used:~$
```

Sudo nano /etc/php/8.1/apache2/php.ini y configuraremos las siguientes directivas

Permitiremos subir archivos

File-uploads= On

```
; Whether to allow HTTP file uploads.
; https://php.net/file-uploads
file_uploads = On
```

Allow_url_fopen= On

```
; Whether to allow the treatment of URLs (like http:// or ftp://) as files.
; https://php.net/allow-url-fopen
allow_url_fopen = On
```

Limitaremos la memoria de procesado a 256MB

Memory_limit= 256M

```
; Maximum amount of memory a script may consume
; https://php.net/memory-limit
memory_limit = 256M
```

Limitamos el tamaño maximo de los ficheros a subir a 100MB

Upload_max_filesize= 100M

```
; Maximum allowed size for uploaded files.
; https://php.net/upload-max-filesize
upload_max_filesize = 100M
```

Limitamos el tiempo de ejecucion a 360 segundos

Max_execution_time= 360

```
; Maximum execution time of each script, in seconds
; https://php.net/max-execution-time
; Note: This directive is hardcoded to 0 for the CLI SAPI
max_execution_time = 360
```

Estableceremos la zona horaria por defecto como la de Madrid

Date.timezone= Europe/Madrid

```
[Date]
; Defines the default timezone used by the date functions
; https://php.net/date.timezone
;date.timezone = Europe/Madrid
```

Mostrar Errores

Permitiremos mostrar errores tanto por pantalla como al arranque del servidor

```
; This directive controls whether or not and where PHP will output errors,
; notices and warnings too. Error output is very useful during development, but
; it could be very dangerous in production environments. Depending on the code
; which is triggering the error, sensitive information could potentially leak
; out of your application such as database usernames and passwords or worse.
; For production environments, we recommend logging errors rather than
; sending them to STDOUT.
; Possible Values:
;   Off = Do not display any errors
;   stderr = Display errors to STDERR (affects only CGI/CLI binaries!)
;   On or stdout = Display errors to STDOUT
; Default Value: On
; Development Value: On
; Production Value: Off
; https://php.net/display-errors
display_errors = On

; The display of errors which occur during PHP's startup sequence are handled
; separately from display_errors. We strongly recommend you set this to 'off'
; for production servers to avoid leaking configuration details.
; Default Value: On
; Development Value: On
; Production Value: Off
; https://php.net/display-startup-errors
display_startup_errors = On
```

Para hacer efectivos estos cambios guardamos el fichero y reiniciamos el servicio apache

```
miadmin@das-used:/etc/php/8.1/apache2$ sudo service apache2 restart
```

Actualizamos el repositorio del sistema

```
miadmin@das-used:~$ sudo apt update
```

Esto se hace para actualizar las aplicaciones y modulos que hay en el repositorio

Instalamos mysql

```
miadmin@das-used:~$ sudo apt install mysql-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Se instalarán los siguientes paquetes adicionales:
  libcgi-fast-perl libcgi-pm-perl libclone-perl libencode-locale-perl libevent-pthreads-2.1-7 libfcgi-bin libfcgi-perl
  libfcgi0ldbl libhtml-parser-perl libhtml-tagset-perl libhtml-template-perl libhttp-date-perl libhttp-message-perl
  libio-html-perl liblwp-mediatypes-perl libmecab2 libprotobuf-lite23 libtimedate-perl liburi-perl mecab-ipadic
  mecab-ipadic-utf8 mecab-utils mysql-client-8.0 mysql-client-core-8.0 mysql-common mysql-server-8.0
  mysql-server-core-8.0
Paquetes sugeridos:
  libdata-dump-perl libipc-sharedcache-perl libbusiness-isbn-perl libwww-perl mailx tinycs
Se instalarán los siguientes paquetes NUEVOS:
  libcgi-fast-perl libcgi-pm-perl libclone-perl libencode-locale-perl libevent-pthreads-2.1-7 libfcgi-bin libfcgi-perl
  libfcgi0ldbl libhtml-parser-perl libhtml-tagset-perl libhtml-template-perl libhttp-date-perl libhttp-message-perl
  libio-html-perl liblwp-mediatypes-perl libmecab2 libprotobuf-lite23 libtimedate-perl liburi-perl mecab-ipadic
  mecab-ipadic-utf8 mecab-utils mysql-client-8.0 mysql-client-core-8.0 mysql-common mysql-server mysql-server-8.0
  mysql-server-core-8.0
0 actualizados, 28 nuevos se instalarán, 0 para eliminar y 40 no actualizados.
Se necesita descargar 29,3 MB de archivos.
Se utilizarán 242 MB de espacio de disco adicional después de esta operación.
¿Desea continuar? [S/n] S
```

Comprobamos que mysql esta instalado y activo

```
miadmin@das-used:~$ sudo service mysql status
● mysql.service - MySQL Community Server
   Loaded: loaded (/lib/systemd/system/mysql.service; enabled; vendor preset: enabled)
   Active: active (running) since Tue 2022-11-01 20:17:57 UTC; 13min ago
     Process: 2750 ExecStartPre=/usr/share/mysql/mysql-systemd-start pre (code=exited, status=0/SUCCESS)
    Main PID: 2773 (mysqld)
      Status: "Server is operational"
        Tasks: 38 (limit: 2238)
       Memory: 363.9M
          CPU: 8.219s
      CGroup: /system.slice/mysql.service
              └─2773 /usr/sbin/mysqld

nov 01 20:17:55 das-used systemd[1]: Starting MySQL Community Server...
nov 01 20:17:57 das-used systemd[1]: Started MySQL Community Server.
```

Comprobamos versión

```
miadmin@das-used:~$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 8.0.31-0ubuntu0.22.04.1 (Ubuntu)
```

Comprobación puertos

```
miadmin@das-used:~$ ss -punta
Netid      State      Recv-Q      Send-Q      Local Address:Port      Peer Address:Port      Process
udp        UNCONN     0            0            127.0.0.53%lo:53        0.0.0.0:*
tcp        LISTEN     0            4096         127.0.0.53%lo:53        0.0.0.0:*
tcp        LISTEN     0            128          0.0.0.0:22              0.0.0.0:*
tcp        LISTEN     0            70          127.0.0.1:33060         0.0.0.0:*
tcp        LISTEN     0            151         127.0.0.1:3306         0.0.0.0:*
tcp        ESTAB      0            0            192.168.3.208:22        192.168.3.8:54981
tcp        LISTEN     0            128          [::]:22                 [::]:*
tcp        LISTEN     0            511          *:80                     *:*
```

```
miadmin@das-used:~$ ss -puta
Netid      State      Recv-Q      Send-Q      Local Address:Port      Peer Address:Port      Process
udp        UNCONN     0            0            127.0.0.53%lo:domain    0.0.0.0:*
tcp        LISTEN     0            4096         127.0.0.53%lo:domain    0.0.0.0:*
tcp        LISTEN     0            128          0.0.0.0:ssh              0.0.0.0:*
tcp        LISTEN     0            70          127.0.0.1:33060         0.0.0.0:*
tcp        LISTEN     0            151         127.0.0.1:mysql          0.0.0.0:*
tcp        ESTAB      0            52            192.168.3.208:ssh        192.168.3.8:54981
tcp        LISTEN     0            128          [::]:ssh                 [::]:*
tcp        LISTEN     0            511          *:http                    *:*
```

Abrimos el puerto 3306 que es el que usa mysql

```
miadmin@das-used:~$ sudo ufw allow 3306
```

```
Rule added
```

```
Rule added (v6)
```

```
miadmin@das-used:~$ sudo ufw status
```

```
Status: active
```

To	Action	From
--	-----	----
22	ALLOW	Anywhere
80	ALLOW	Anywhere
9000	ALLOW	Anywhere
9003	ALLOW	Anywhere
3306	ALLOW	Anywhere
22 (v6)	ALLOW	Anywhere (v6)
80 (v6)	ALLOW	Anywhere (v6)
9000 (v6)	ALLOW	Anywhere (v6)
9003 (v6)	ALLOW	Anywhere (v6)
3306 (v6)	ALLOW	Anywhere (v6)

Comentar la línea bind-address del fichero /etc/mysql/mysql.conf.d/mysqld.cnf

```
GNU nano 6.2                                mysqld.cnf
#
# The MySQL database server configuration file.
#
# One can use all long options that the program supports.
# Run program with --help to get a list of available options and with
# --print-defaults to see which it would actually understand and use.
#
# For explanations see
# http://dev.mysql.com/doc/mysql/en/server-system-variables.html
#
# Here is entries for some specific programs
# The following values assume you have at least 32M ram
[mysqld]
#
# * Basic Settings
#
user                = mysql
# pid-file           = /var/run/mysqld/mysqld.pid
# socket             = /var/run/mysqld/mysqld.sock
# port               = 3306
# datadir            = /var/lib/mysql

# If MySQL is running as a replication slave, this should be
# changed. Ref https://dev.mysql.com/doc/refman/8.0/en/server-system-variables.html#sysvar_tmpdir
# tmpdir             = /tmp
#
# Instead of skip-networking the default is now to listen only on
# localhost which is more compatible and is not less secure.
# bind-address        = 127.0.0.1
# mysqlx-bind-address = 127.0.0.1
#
# * Fine Tuning
```

Instalar Xdebug

Xdebug es la herramienta de depuración de código para PHP

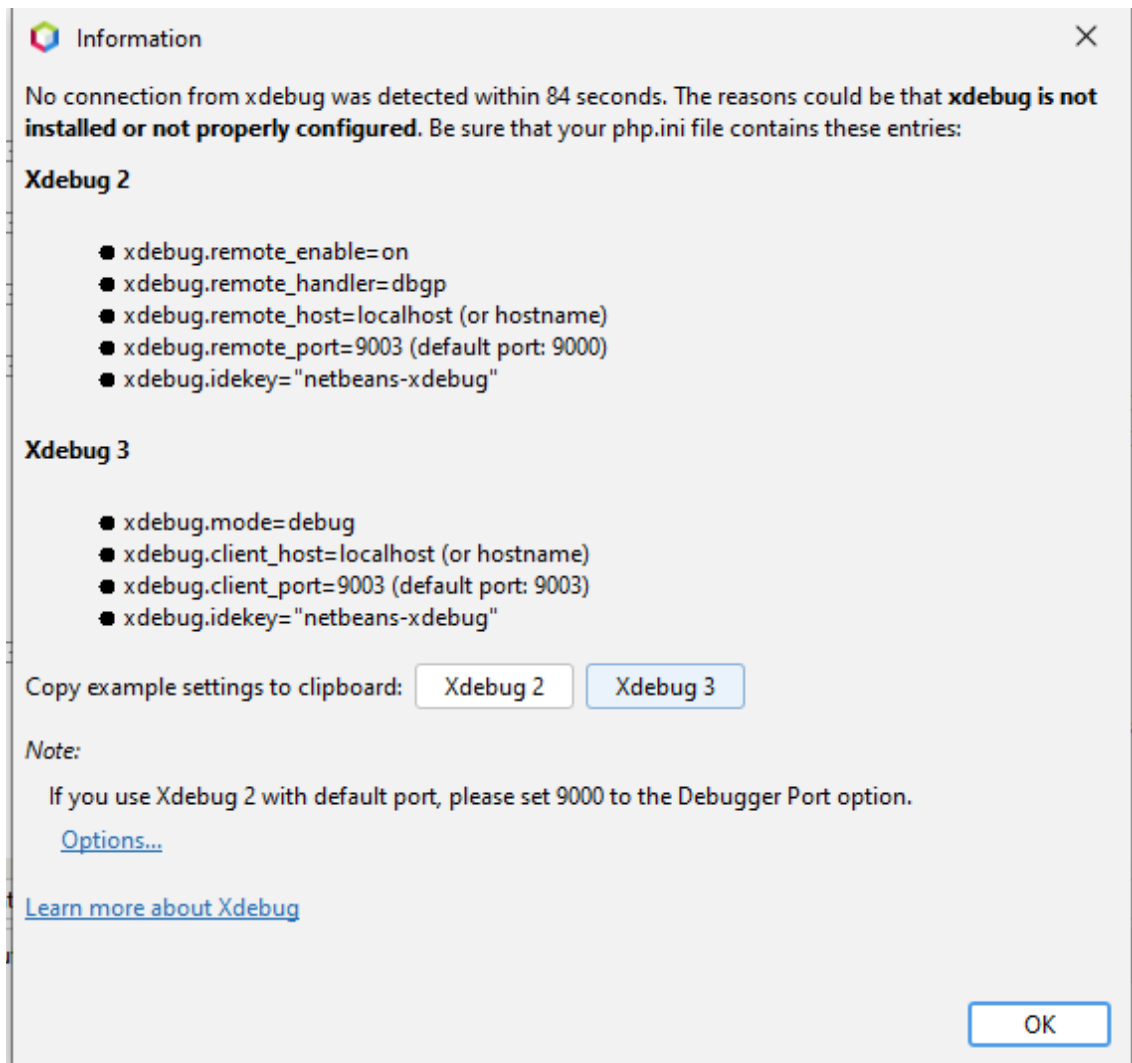
```
miadmin@das-used:/etc/php/8.1/apache2$ sudo apt install php-xdebug
```

Configurar Xdebug servidor

Antes de configurar xdebug haremos una copia de seguridad

```
miadmin@das-used:/etc/php/8.1/apache2/conf.d$ sudo cp 20-xdebug.ini 20-xdebug.ini.bak
```

Netbeans nos da la configuración de Xdebug (Yo en este caso he utilizado la configuración de Xdebug 3)



Copiamos la configuración y cambiamos la IP del client_host a la ip de la maquina en la cual tenemos el IDE en el que vamos a debugear el código

```
GNU nano 6.2 20-xdebug.ini
zend_extension=xdebug.so
xdebug.mode=debug
xdebug.client_host=192.168.3.7
xdebug.client_port=9003
xdebug.idekey="netbeans-xdebug"
xdebug.remote_connect_back=1
xdebug.discover_client_host=1
```

A continuación reiniciamos el servicio con `sudo service apache2 restart`

```
miadmin@das-used:/etc/php/8.1/apache2/conf.d$ sudo service apache2 restart
miadmin@das-used:/etc/php/8.1/apache2/conf.d$ sudo service apache2 status
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Tue 2022-10-11 16:48:03 UTC; 6s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 1754 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
  Main PID: 1759 (apache2)
    Tasks: 6 (limit: 2238)
   Memory: 10.1M
      CPU: 55ms
   CGroup: /system.slice/apache2.service
           └─1759 /usr/sbin/apache2 -k start
           └─1760 /usr/sbin/apache2 -k start
           └─1761 /usr/sbin/apache2 -k start
           └─1762 /usr/sbin/apache2 -k start
           └─1763 /usr/sbin/apache2 -k start
           └─1764 /usr/sbin/apache2 -k start

oct 11 16:48:03 das-used systemd[1]: apache2.service: Deactivated successfully.
oct 11 16:48:03 das-used apachectl[1751]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name: [1751]
oct 11 16:48:03 das-used systemd[1]: Stopped The Apache HTTP Server.
oct 11 16:48:03 das-used systemd[1]: Starting The Apache HTTP Server...
oct 11 16:48:03 das-used apachectl[1758]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name: [1758]
oct 11 16:48:03 das-used systemd[1]: Started The Apache HTTP Server.
```

Abrimos el puerto 9003

```
miadmin@das-used:/etc/php/8.1/apache2/conf.d$ sudo ufw allow 9003
Rules updated
Rules updated (v6)
```


Instalación Idiomas PHP

Usaremos el comando locale-gen

```
miadmin@das-used:~$ sudo locale-gen pt_PT.UTF-8
[sudo] password for miadmin:
Generating locales (this might take a while)...
  pt_PT.UTF-8... done
Generation complete.
```

En este caso he instalado el portugués ya que lo necesitaba para un ejercicio de DWES

Listado de idiomas

```
miadmin@das-used:~$ locale -a
C
C.utf8
es_ES.utf8
POSIX
pt_PT.utf8
```

Reiniciamos para que se apliquen los cambios

Cambios aplicados

La fecha y hora local en Oporto es : segunda, 17 do outubro do 2022 15:58:47

```
<?php
ini_set("date.timezone", "Europe/Lisbon");
$locale="pt_PT.UTF-8";
setlocale(LC_ALL,$locale);
$fecha= strftime("%A, %d do %B do %G %T");
print 'La fecha y hora local en Oporto es : '. $fecha;
?>
```

Crear usuario

```
mysql> create user 'adminsql'@'%' identified by 'paso';
Query OK, 0 rows affected (0,02 sec)

mysql> grant all privileges on *.* to 'adminsql'@'%' with grant option;
Query OK, 0 rows affected (0,01 sec)
```

Instalar conector php-mysql

```
miadmin@das-used:~$ sudo apt-get install php-mysql
[sudo] password for miadmin:
Leyendo lista de paquetes... Hecho
Creando árbol de dependencias... Hecho
Leyendo la información de estado... Hecho
Se instalarán los siguientes paquetes adicionales:
  libapache2-mod-php8.1 php8.1-cli php8.1-common php8.1-mysql php8.1-opcache php8.1-readline
Paquetes sugeridos:
  php-pear
Se instalarán los siguientes paquetes NUEVOS:
  php-mysql php8.1-mysql
Se actualizarán los siguientes paquetes:
  libapache2-mod-php8.1 php8.1-cli php8.1-common php8.1-opcache php8.1-readline
5 actualizados, 2 nuevos se instalarán, 0 para eliminar y 22 no actualizados.
Se necesita descargar 5.235 kB de archivos.
Se utilizarán 475 kB de espacio de disco adicional después de esta operación.
¿Desea continuar? [S/n] s
```

Al finalizar reiniciamos el servicio apache2

Configuración para el uso del fichero .htaccess

En /etc/apache2/apache2.conf configuramos la configuración del directorio /var/www/

```
# Sets the default security model of the Apache2 HTTPD server. It does
# not allow access to the root filesystem outside of /usr/share and /var/www.
# The former is used by web applications packaged in Debian,
# the latter may be used for local directories served by the web server. If
# your system is serving content from a sub-directory in /srv you must allow
# access here, or in any related virtual host.
<Directory />
    Options FollowSymLinks
    AllowOverride None
    Require all denied
</Directory>

<Directory /usr/share>
    AllowOverride None
    Require all granted
</Directory>

<Directory /var/www/>
    Options Indexes FollowSymLinks
    AllowOverride All
    Require all granted
</Directory>

#<Directory /srv/>
#     Options Indexes FollowSymLinks
#     AllowOverride None
#     Require all granted
#</Directory>
```

El fichero ha de estar en el directorio arriba especificado

The screenshot shows a file manager interface with two panes. The left pane displays the local file system structure, including directories like 'Software', 'System Volume Information', and 'E:\(David)'. The right pane shows the remote site structure, with files like 'index.html' and '.htaccess' listed. The '.htaccess' file is highlighted in both panes, indicating its location in the /var/www/html directory.

Desactivar indexes

```

GNU nano 6.2                                     apache2.conf *
ErrorLog ${APACHE_LOG_DIR}/error.log

#
# LogLevel: Control the severity of messages logged to the error_log.
# Available values: trace8, ..., trace1, debug, info, notice, warn,
# error, crit, alert, emerg.
# It is also possible to configure the log level for particular modules, e.g.
# "LogLevel info ssl:warn"
#
LogLevel warn

# Include module configuration:
IncludeOptional mods-enabled/*.load
IncludeOptional mods-enabled/*.conf

# Include list of ports to listen on
Include ports.conf

# Sets the default security model of the Apache2 HTTPD server. It does
# not allow access to the root filesystem outside of /usr/share and /var/www.
# The former is used by web applications packaged in Debian,
# the latter may be used for local directories served by the web server. If
# your system is serving content from a sub-directory in /srv you must allow
# access here, or in any related virtual host.
<Directory />
    Options FollowSymLinks
    AllowOverride None
    Require all denied
</Directory>

<Directory /usr/share>
    AllowOverride None
    Require all granted
</Directory>

<Directory /var/www/>
    Options -Indexes +FollowSymLinks
    AllowOverride All
    Require all granted
</Directory>

#<Directory /srv/>
#     Options Indexes FollowSymLinks
#     AllowOverride None
#     Require all granted
#</Directory>

# AccessFileName: The name of the file to look for in each directory
# for additional configuration directives. See also the AllowOverride
# directive.
#
AccessFileName .htaccess

#
# The following lines prevent .htaccess and .htpasswd files from being

```

Configurar elección de sitios por defecto

```

miadmin@das-used: /etc/apache2/mods-enabled
GNU nano 6.2                                     dir.conf *
<IfModule mod_dir.c>
    DirectoryIndex index.php index.html index.cgi index.pl index.xhtml index.htm
</IfModule>

# vim: syntax=apache ts=4 sw=4 sts=4 sr noet

```

El sitio principal tiene que ser index.php

Configuración zona horaria Ubuntu server 22.04

```
miadmin@das-used:~$ sudo timedatectl set-timezone Europe/Madrid
[sudo] password for miadmin:
miadmin@das-used:~$ timedatectl
      Local time: jue 2022-11-24 16:57:07 CET
      Universal time: jue 2022-11-24 15:57:07 UTC
          RTC time: jue 2022-11-24 15:57:07
          Time zone: Europe/Madrid (CET, +0100)
System clock synchronized: yes
          NTP service: active
          RTC in local TZ: no
```

Instalación netbeans 15.0

Instalacion JDK

Para la instalacion de Netbeans 15.0 se necesita un JDK (Java Development kit)

Yo utilizare Adoptium JDK

[Latest Releases | Adoptium](#)

Eclipse Temurin™ Latest Releases

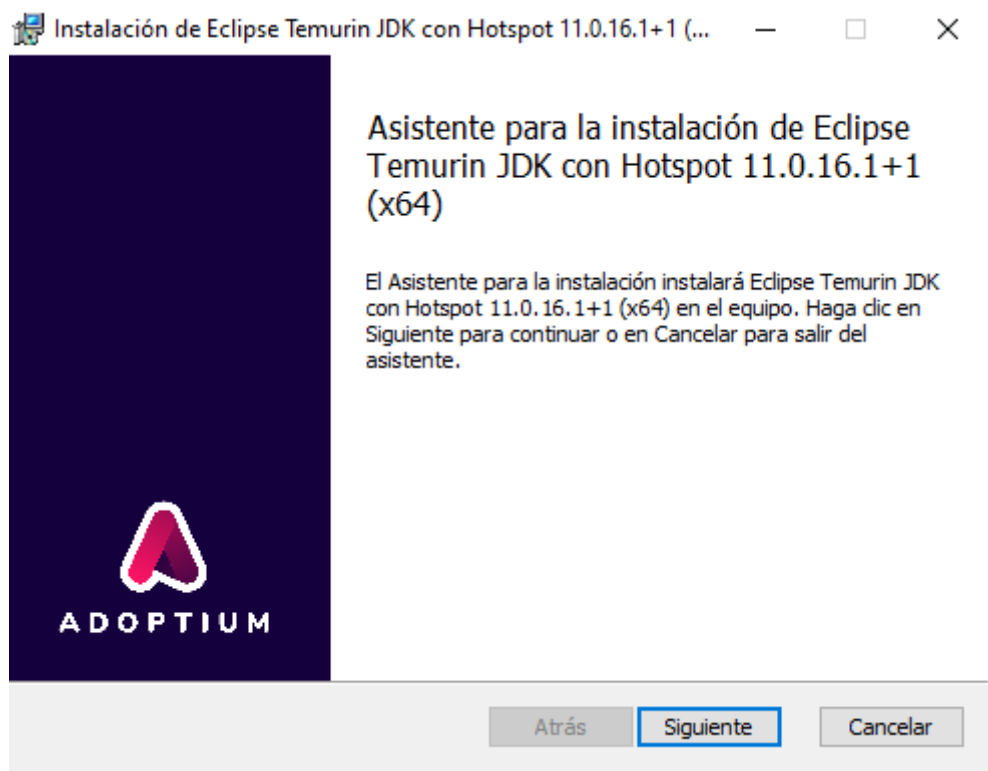
Eclipse Temurin es el proyecto open source de Java SE basado en OpenJDK. Temurin esta disponible para una [gama amplia de plataformas](#) y versiones de Java SE. Las más recientes versiones recomendadas para uso en producción son listadas a continuación, y son regularmente [actualizadas y soportadas](#) por la comunidad de Adoptium. Ayuda de migración, imágenes de contenedores y guías de instalación de paquetes están disponibles en la [sección de documentación](#). Puedes leer las [Notas de la liberación](#) de cada versión gracias a nuestros amigos en Foojay.io!

Usa la caja desplegable de abajo para listar la lista de las actuales liberaciones.

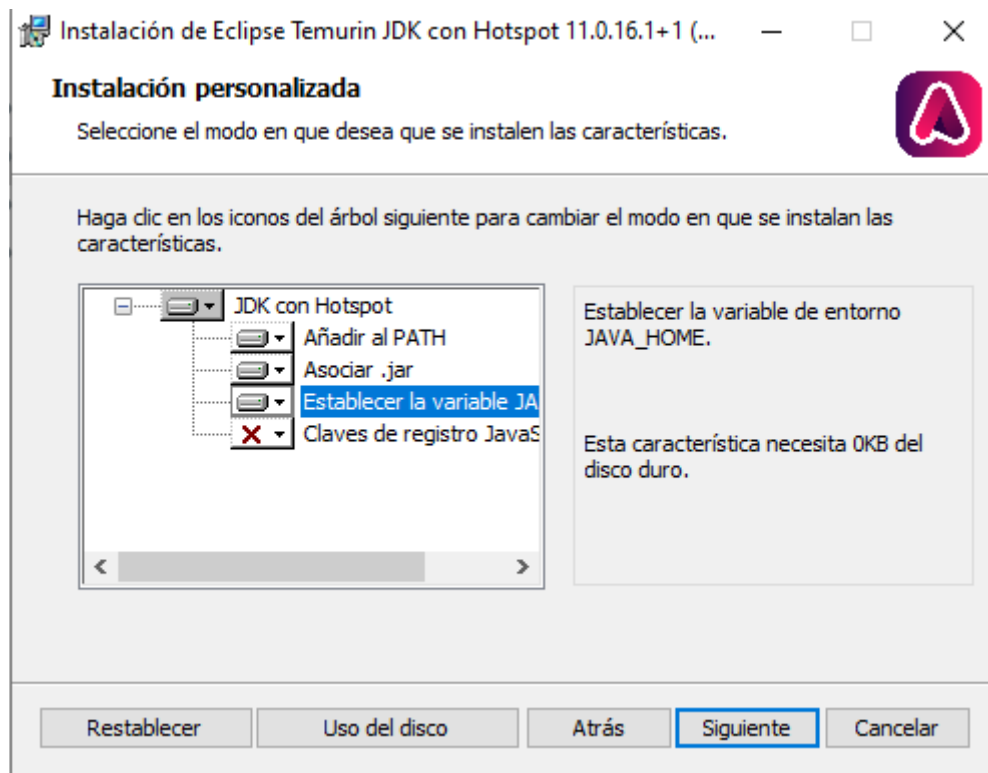
Sistema Operativo	Arquitectura	Tipo de paquete	Version
Windows	Any	JDK	11

jdk-11.0.16.1+1 Temurin 19 de agosto de 2022	Windows	x64	JDK - 175 MB Checksum JDK - 197 MB Checksum .msi .zip
jdk-11.0.16.1+1 Temurin 2022 Cookie settings	Windows	x32	JDK - 157 MB Checksum JDK - 176 MB Checksum .msi .zip Cambiar idioma

Instalamos el JDK

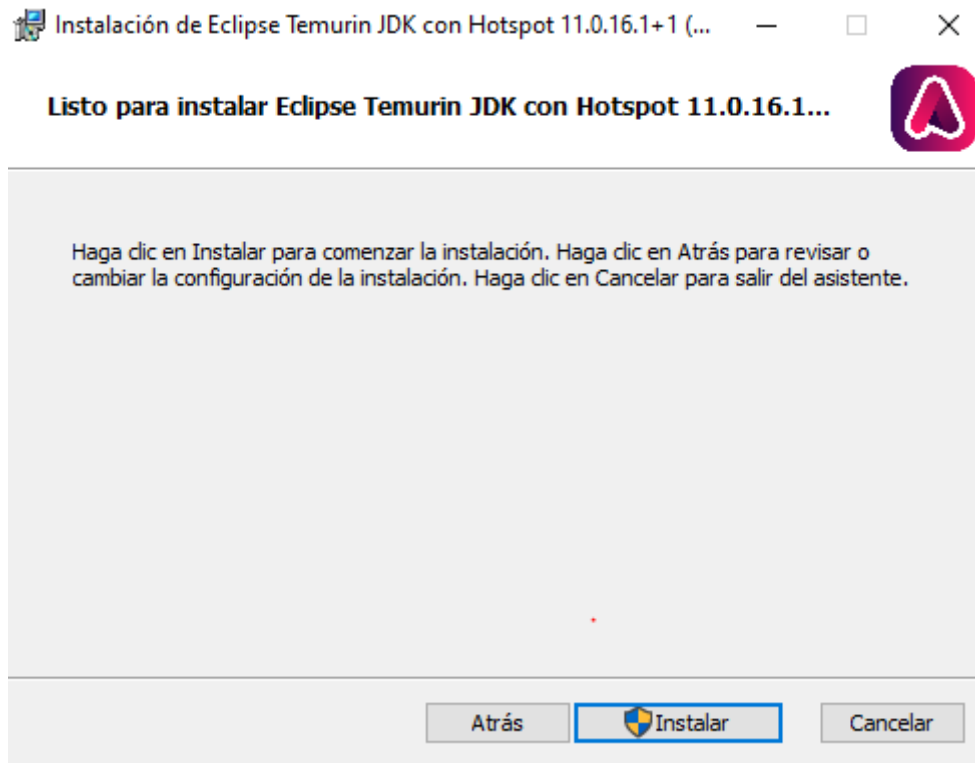


Pulsamos a siguiente



Lo instalaremos en C:\Program Files\Eclipse Adoptium\jdk-11.0.16.101-hotspot\
(No es lo mas recomendable instalar en el disco C:\)

Pulsamos siguiente



Pulsamos Instalar

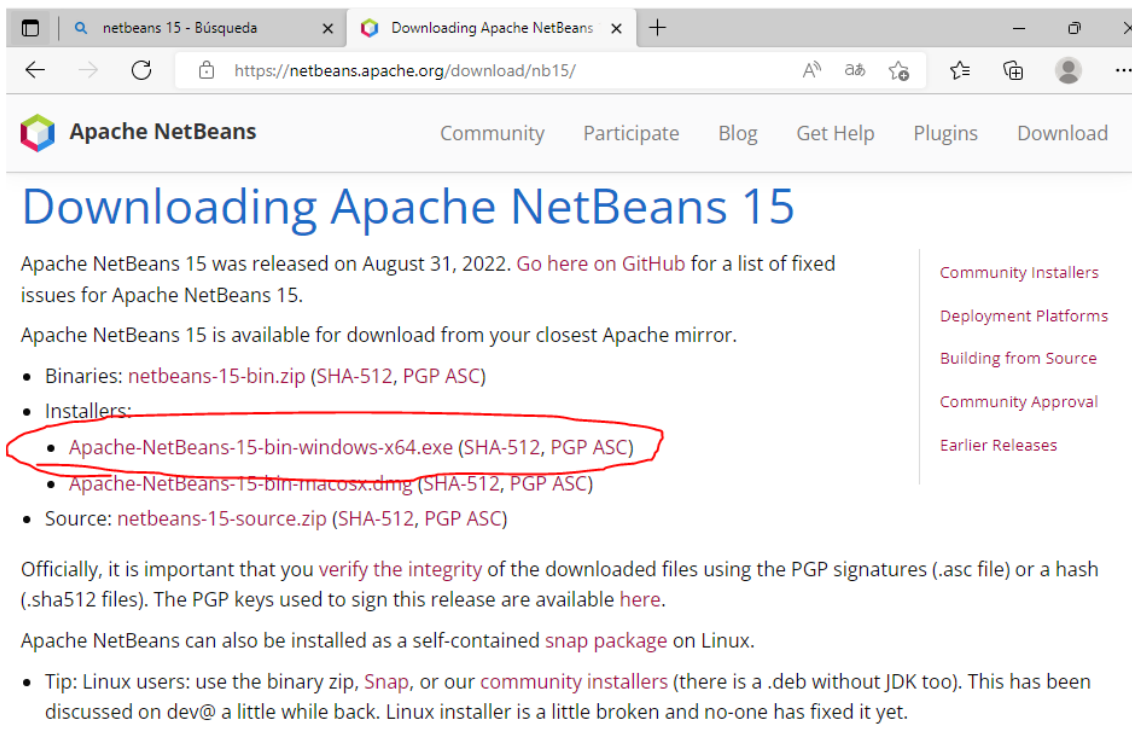
[Instalación Netbeans](#)

Una vez instalado el JDK procedemos a descargar e Instalar Apache NetBeans 15.0

Página oficial Apache NetBeans

[Downloading Apache NetBeans 15](#)

Seleccionamos la forma de descarga en este caso descargamos el instalador ejecutable



The screenshot shows the Apache NetBeans 15 download page. The browser's address bar displays `https://netbeans.apache.org/download/nb15/`. The page header includes the Apache NetBeans logo and navigation links: Community, Participate, Blog, Get Help, Plugins, and Download. The main heading is "Downloading Apache NetBeans 15". Below this, a paragraph states that Apache NetBeans 15 was released on August 31, 2022, and provides a link to GitHub for a list of fixed issues. Another paragraph mentions that the software is available for download from the closest Apache mirror. A list of download options is provided, with "Installers:" circled in red. The installers list includes "Apache-NetBeans-15-bin-windows-x64.exe (SHA-512, PGP ASC)", which is also circled in red. Other options include "Apache-NetBeans-15-bin-macosx.dmg (SHA-512, PGP ASC)" and "Source: netbeans-15-source.zip (SHA-512, PGP ASC)". A sidebar on the right contains links for "Community Installers", "Deployment Platforms", "Building from Source", "Community Approval", and "Earlier Releases". A paragraph explains the importance of verifying the integrity of downloaded files using PGP signatures or hashes. A tip for Linux users is also provided.

Apache NetBeans 15 was released on August 31, 2022. [Go here on GitHub](#) for a list of fixed issues for Apache NetBeans 15.

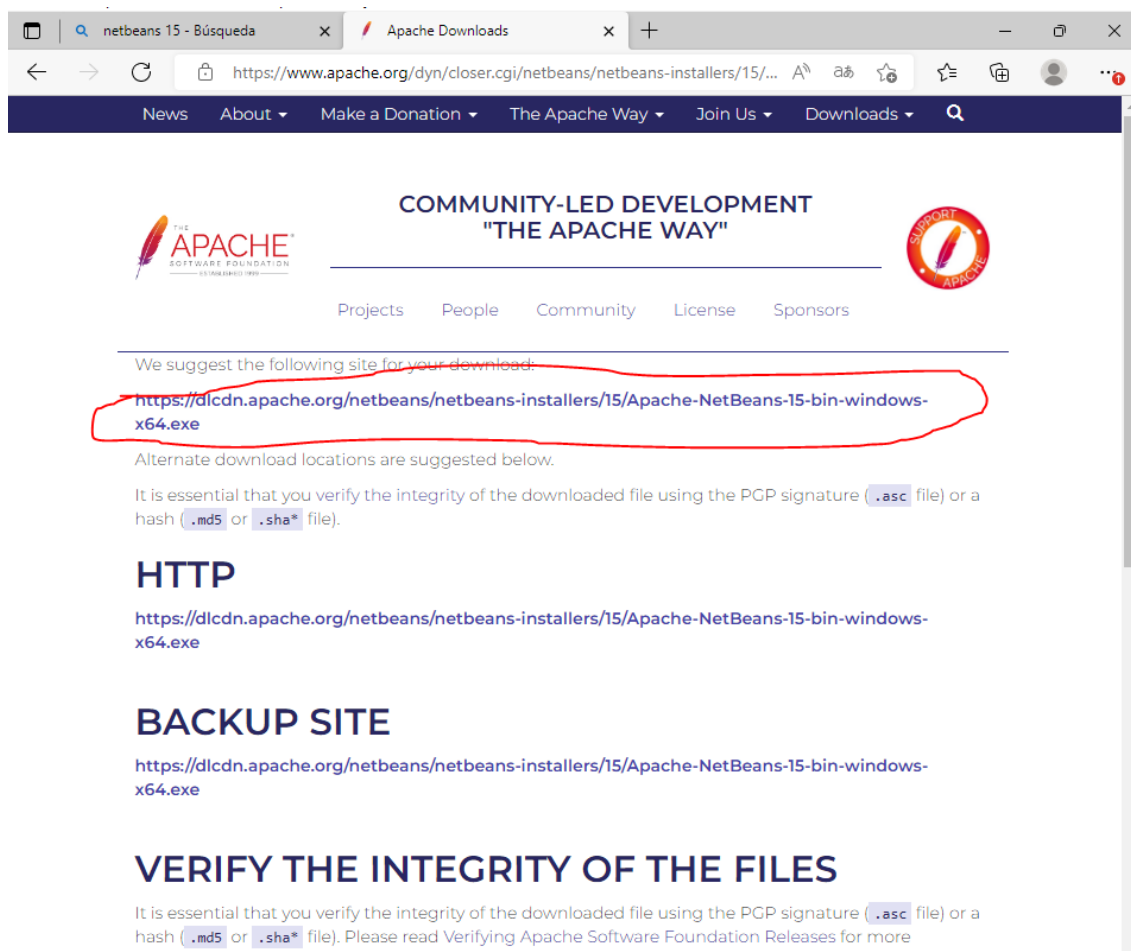
Apache NetBeans 15 is available for download from your closest Apache mirror.

- Binaries: [netbeans-15-bin.zip](#) (SHA-512, PGP ASC)
- Installers:
 - [Apache-NetBeans-15-bin-windows-x64.exe](#) (SHA-512, PGP ASC)
 - [Apache-NetBeans-15-bin-macosx.dmg](#) (SHA-512, PGP ASC)
- Source: [netbeans-15-source.zip](#) (SHA-512, PGP ASC)

Officially, it is important that you [verify the integrity](#) of the downloaded files using the PGP signatures (.asc file) or a hash (.sha512 files). The PGP keys used to sign this release are available [here](#).

Apache NetBeans can also be installed as a self-contained [snap package](#) on Linux.

- Tip: Linux users: use the binary zip, [Snap](#), or our [community installers](#) (there is a .deb without JDK too). This has been discussed on [dev@](#) a little while back. Linux installer is a little broken and no-one has fixed it yet.



The screenshot shows the Apache download page for NetBeans 15. The browser's address bar displays `https://www.apache.org/dyn/closer.cgi/netbeans/netbeans-installers/15/...`. The page header includes the Apache logo and navigation links: News, About, Make a Donation, The Apache Way, Join Us, and Downloads. The main heading is "COMMUNITY-LED DEVELOPMENT 'THE APACHE WAY'". Below this, a paragraph suggests the following site for download: <https://dlcdn.apache.org/netbeans/netbeans-installers/15/Apache-NetBeans-15-bin-windows-x64.exe>, which is circled in red. A paragraph mentions alternate download locations and the importance of verifying the integrity of the downloaded file using the PGP signature or hash. The page is divided into sections: "HTTP" with the same download link, "BACKUP SITE" with the same link, and "VERIFY THE INTEGRITY OF THE FILES" with a paragraph explaining the importance of verifying the integrity of the downloaded file using the PGP signature or hash.

We suggest the following site for your download:

<https://dlcdn.apache.org/netbeans/netbeans-installers/15/Apache-NetBeans-15-bin-windows-x64.exe>

Alternate download locations are suggested below.

It is essential that you verify the integrity of the downloaded file using the PGP signature (.asc file) or a hash (.md5 or .sha* file).

HTTP

<https://dlcdn.apache.org/netbeans/netbeans-installers/15/Apache-NetBeans-15-bin-windows-x64.exe>

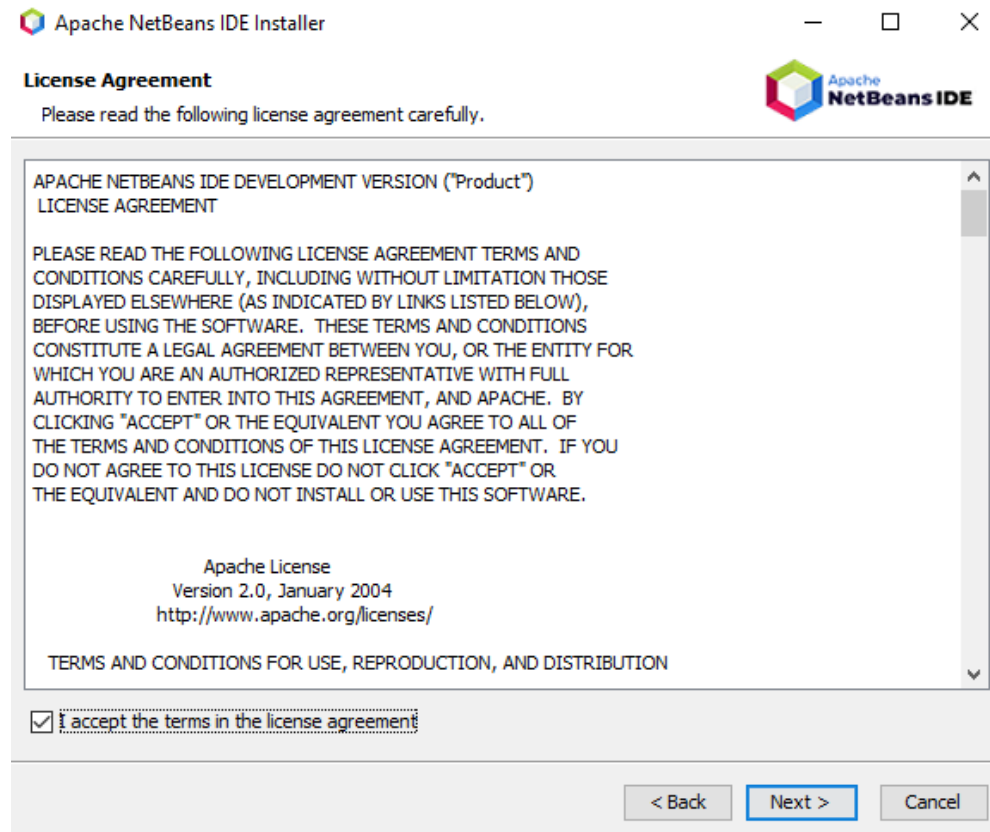
BACKUP SITE

<https://dlcdn.apache.org/netbeans/netbeans-installers/15/Apache-NetBeans-15-bin-windows-x64.exe>

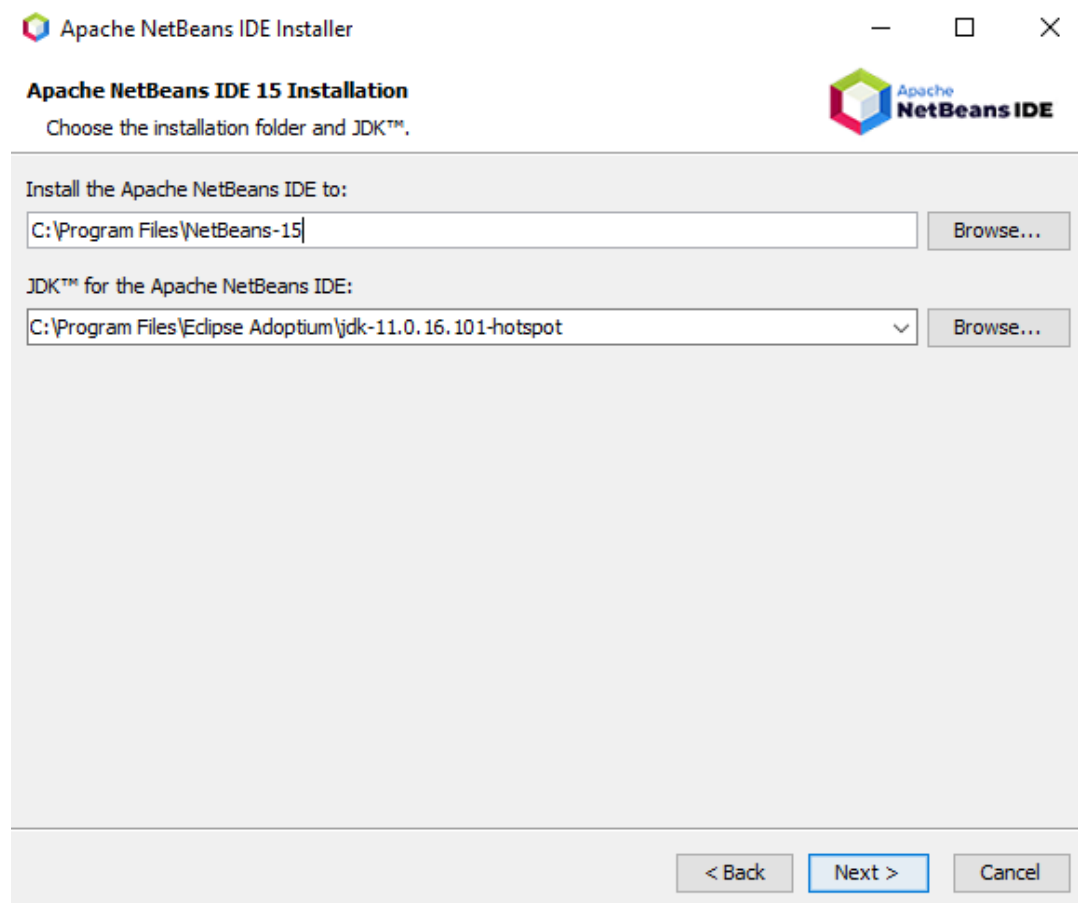
VERIFY THE INTEGRITY OF THE FILES

It is essential that you verify the integrity of the downloaded file using the PGP signature (.asc file) or a hash (.md5 or .sha* file). Please read [Verifying Apache Software Foundation Releases](#) for more information.

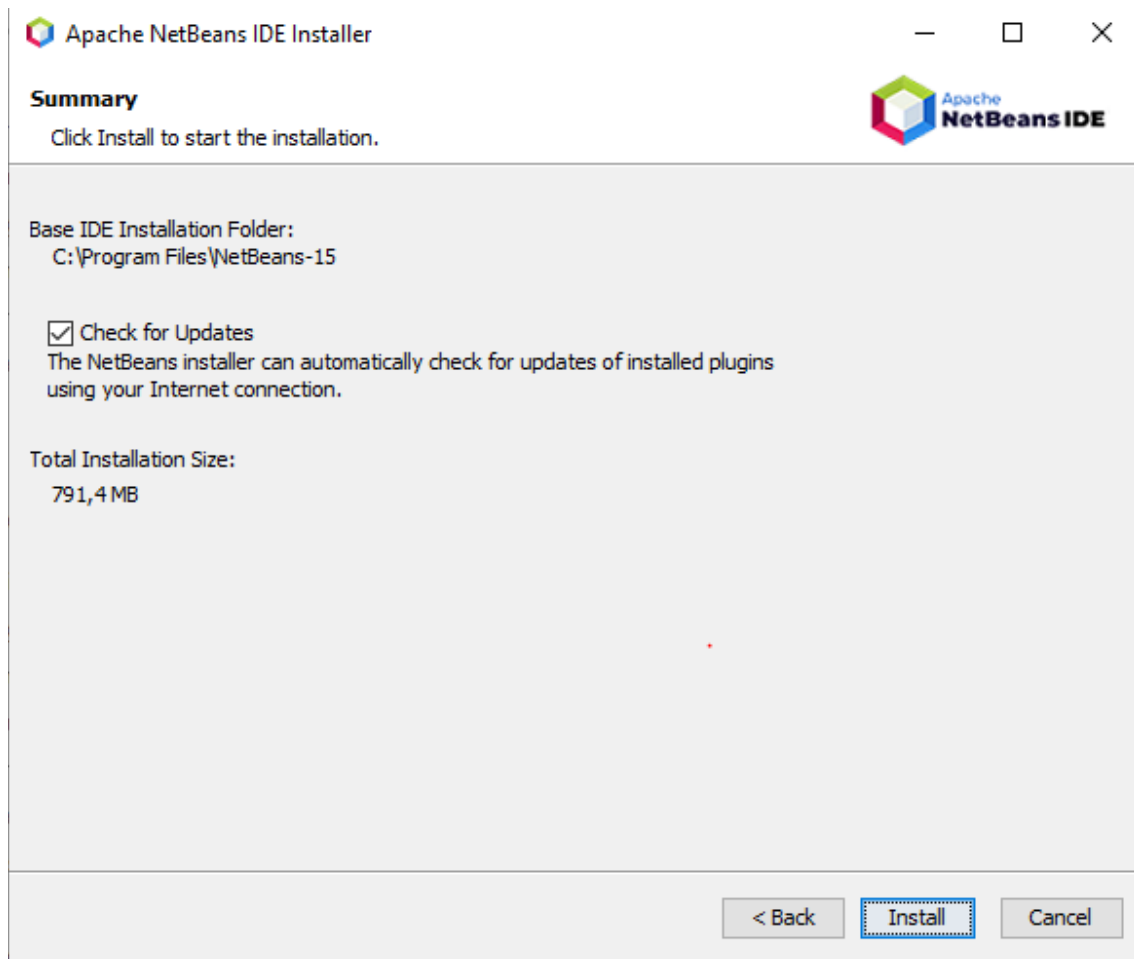
Aceptamos los terminos de la licencia y aceptamos



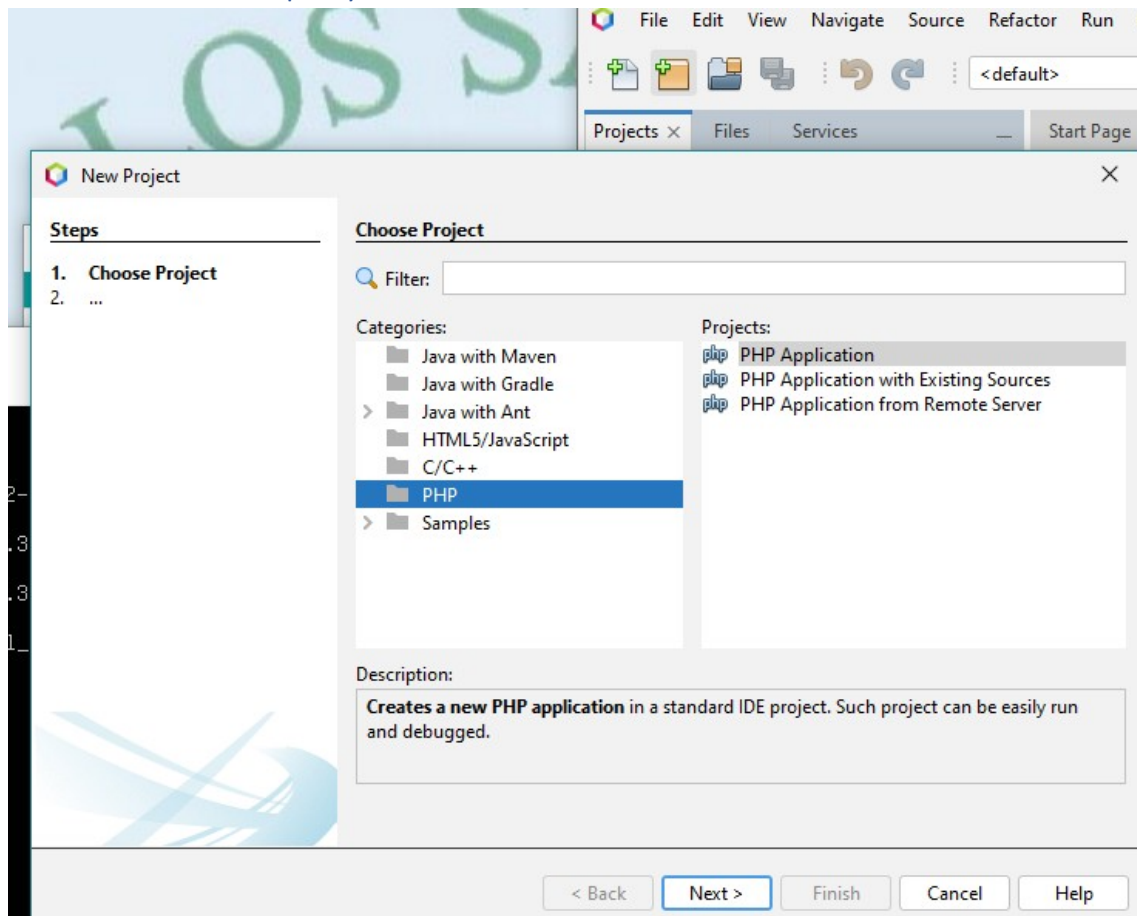
Seleccionamos donde queremos instalar el IDE y la ubicación donde está instalado el JDK



Resumen de la instalacion del IDE

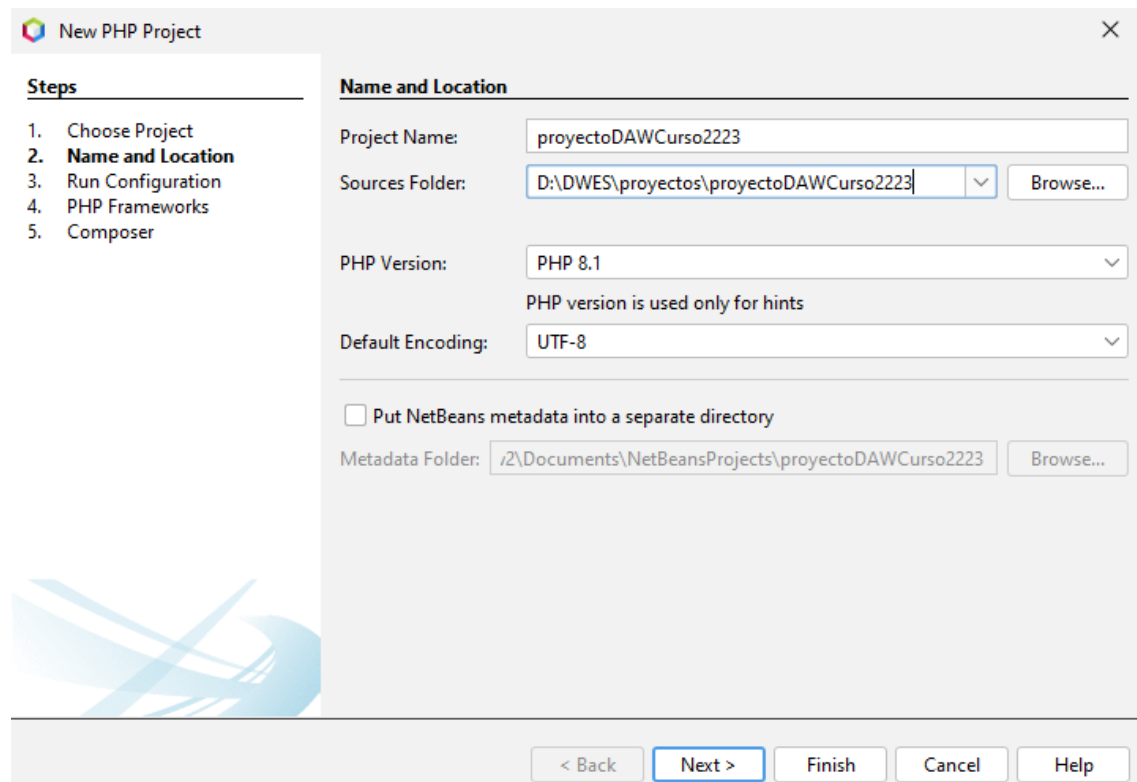


Creamos nuevo proyecto netbeans



Creamos nuevo proyecto de PHP que en este caso será una aplicación PHP

Damos nombre al fichero



New PHP Project

Steps

1. Choose Project
2. **Name and Location**
3. Run Configuration
4. PHP Frameworks
5. Composer

Name and Location

Project Name:

Sources Folder:

PHP Version:
PHP version is used only for hints

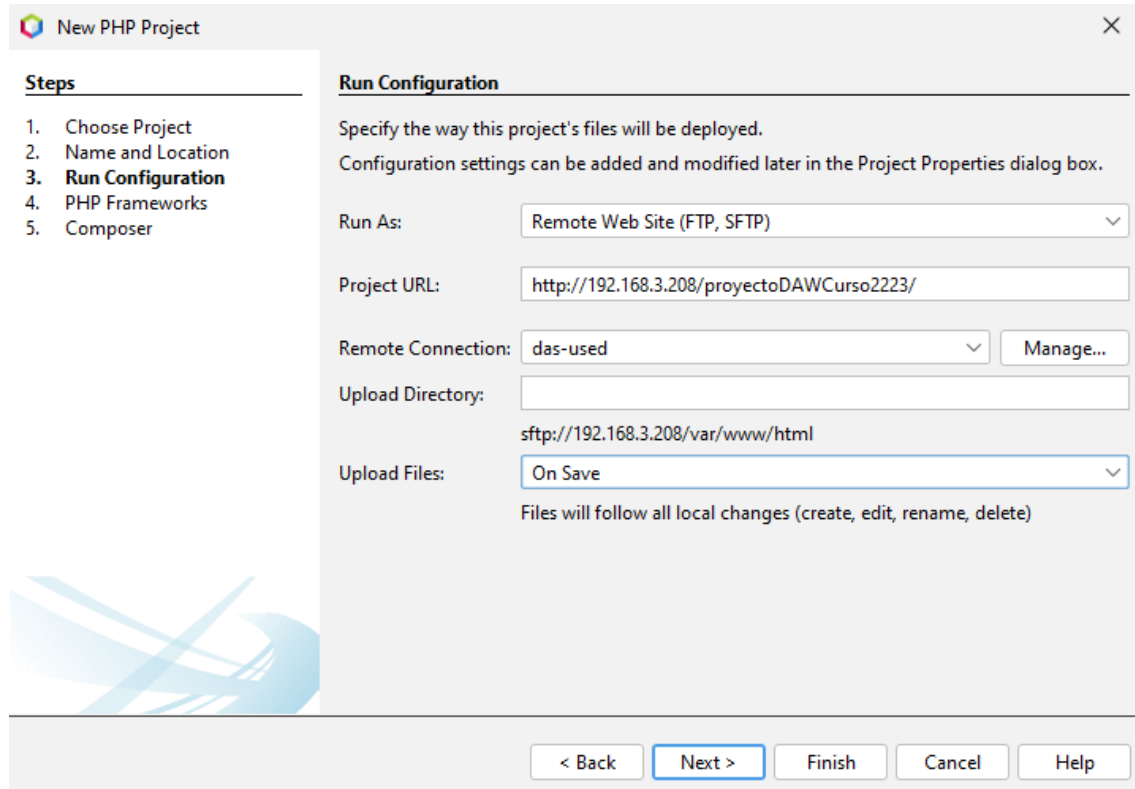
Default Encoding:

☐ Put NetBeans metadata into a separate directory

Metadata Folder:

Le damos como nombre proyectoDAWCurso2223 y utilizaremos la version 8.1 de PHP con la codificación UTF-8

Configuramos sFTP y la url del proyecto y finalizamos



New PHP Project

Steps

1. Choose Project
2. Name and Location
3. **Run Configuration**
4. PHP Frameworks
5. Composer

Run Configuration

Specify the way this project's files will be deployed.
Configuration settings can be added and modified later in the Project Properties dialog box.

Run As: Remote Web Site (FTP, SFTP)

Project URL: http://192.168.3.208/proyectoDAWCurso2223/

Remote Connection: das-used Manage...

Upload Directory: sftp://192.168.3.208/var/www/html

Upload Files: On Save

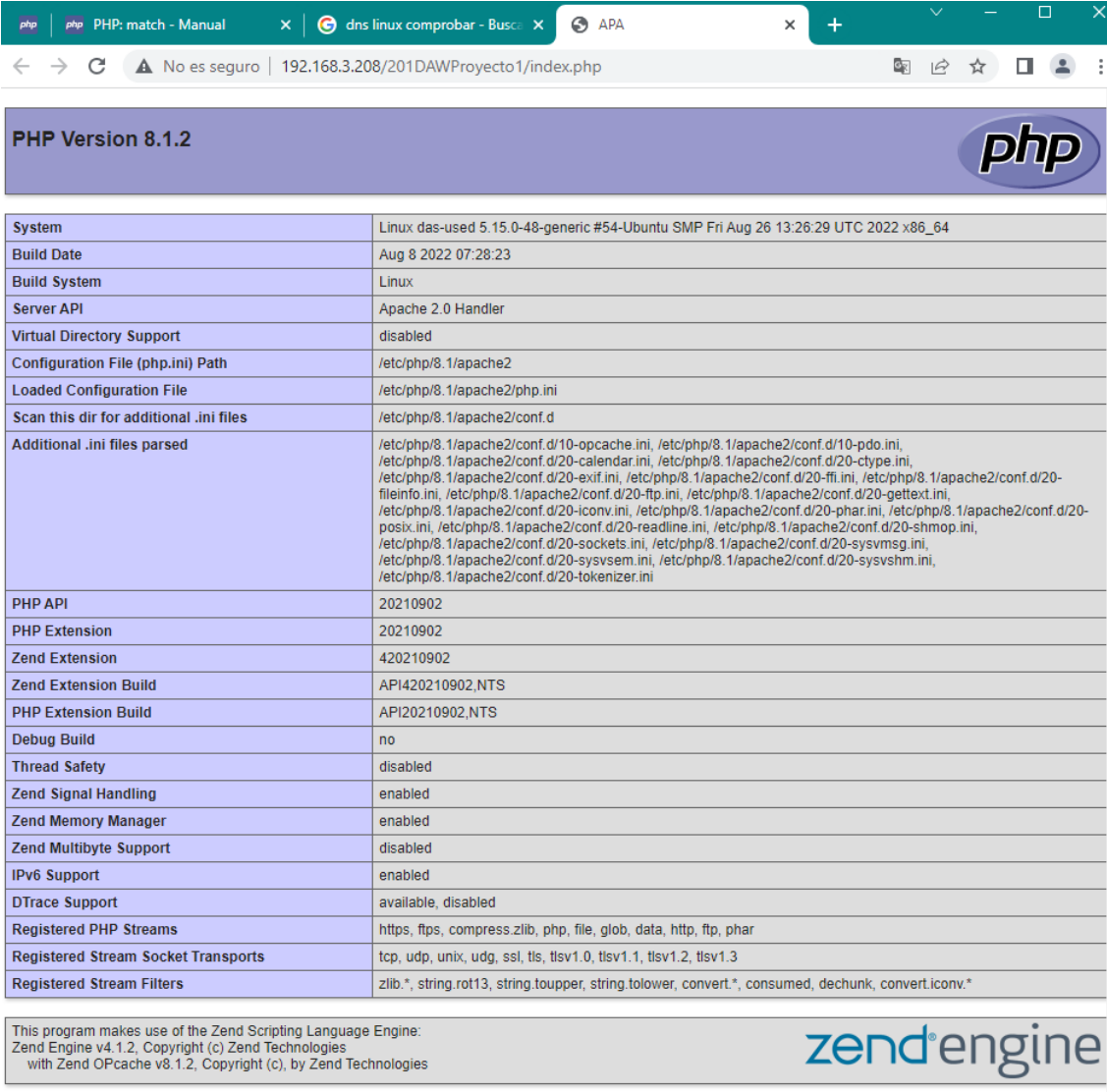
Files will follow all local changes (create, edit, rename, delete)

< Back **Next >** Finish Cancel Help

La aplicación se subirá mediante sFTP al servidor 192.168.3.208 (en este caso mi servidor de clase) en una carpeta que se llamará igual que el proyecto(no es necesario que se llame la carpeta igual que el proyecto) y subiremos los archivos automaticamente cada vez que guardemos los cambios

Informacion de php

```
<!DOCTYPE html>
<!--
Click nbfs://nbhost/SystemFileSystem/Templates/PHP/info.php
Click nbfs://nbhost/SystemFileSystem/Templates/PHP/info.php
-->
<html>
  <head>
    <meta charset="UTF-8">
    <title>APA</title>
  </head>
  <body>
    <?php
    phpinfo();
    ?>
    <p>APA</p>
    
  </body>
</html>
```



PHP Version 8.1.2

System	Linux das-used 5.15.0-48-generic #54-Ubuntu SMP Fri Aug 26 13:26:29 UTC 2022 x86_64
Build Date	Aug 8 2022 07:28:23
Build System	Linux
Server API	Apache 2.0 Handler
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/etc/php/8.1/apache2
Loaded Configuration File	/etc/php/8.1/apache2/php.ini
Scan this dir for additional .ini files	/etc/php/8.1/apache2/conf.d
Additional .ini files parsed	/etc/php/8.1/apache2/conf.d/10-opcache.ini, /etc/php/8.1/apache2/conf.d/10-pdo.ini, /etc/php/8.1/apache2/conf.d/20-calendar.ini, /etc/php/8.1/apache2/conf.d/20-ctype.ini, /etc/php/8.1/apache2/conf.d/20-exif.ini, /etc/php/8.1/apache2/conf.d/20-ffi.ini, /etc/php/8.1/apache2/conf.d/20-fileinfo.ini, /etc/php/8.1/apache2/conf.d/20-ftp.ini, /etc/php/8.1/apache2/conf.d/20-gettext.ini, /etc/php/8.1/apache2/conf.d/20-iconv.ini, /etc/php/8.1/apache2/conf.d/20-phar.ini, /etc/php/8.1/apache2/conf.d/20-posix.ini, /etc/php/8.1/apache2/conf.d/20-readline.ini, /etc/php/8.1/apache2/conf.d/20-shmop.ini, /etc/php/8.1/apache2/conf.d/20-sockets.ini, /etc/php/8.1/apache2/conf.d/20-sysmsg.ini, /etc/php/8.1/apache2/conf.d/20-syssem.ini, /etc/php/8.1/apache2/conf.d/20-sysvshm.ini, /etc/php/8.1/apache2/conf.d/20-tokenizer.ini
PHP API	20210902
PHP Extension	20210902
Zend Extension	420210902
Zend Extension Build	API420210902,NTS
PHP Extension Build	API20210902,NTS
Debug Build	no
Thread Safety	disabled
Zend Signal Handling	enabled
Zend Memory Manager	enabled
Zend Multibyte Support	disabled
IPv6 Support	enabled
DTrace Support	available, disabled
Registered PHP Streams	https, ftps, compress.zlib, php, file, glob, data, http, ftp, phar
Registered Stream Socket Transports	tcp, udp, unix, udg, ssl, tls, tlsv1.0, tlsv1.1, tlsv1.2, tlsv1.3
Registered Stream Filters	zlib.*, string.rot13, string.toupper, string.tolower, convert.*, consumed, dechunk, convert.iconv.*

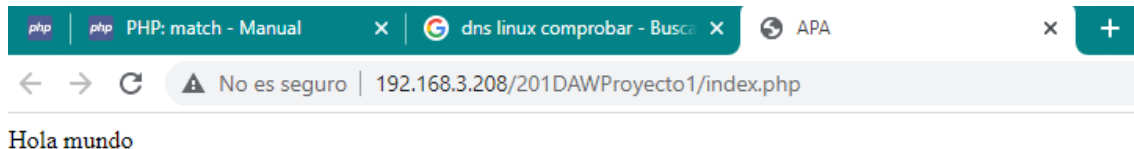
This program makes use of the Zend Scripting Language Engine:
 Zend Engine v4.1.2, Copyright (c) Zend Technologies
 with Zend OPcache v8.1.2, Copyright (c), by Zend Technologies

zendengine

Vista web php info

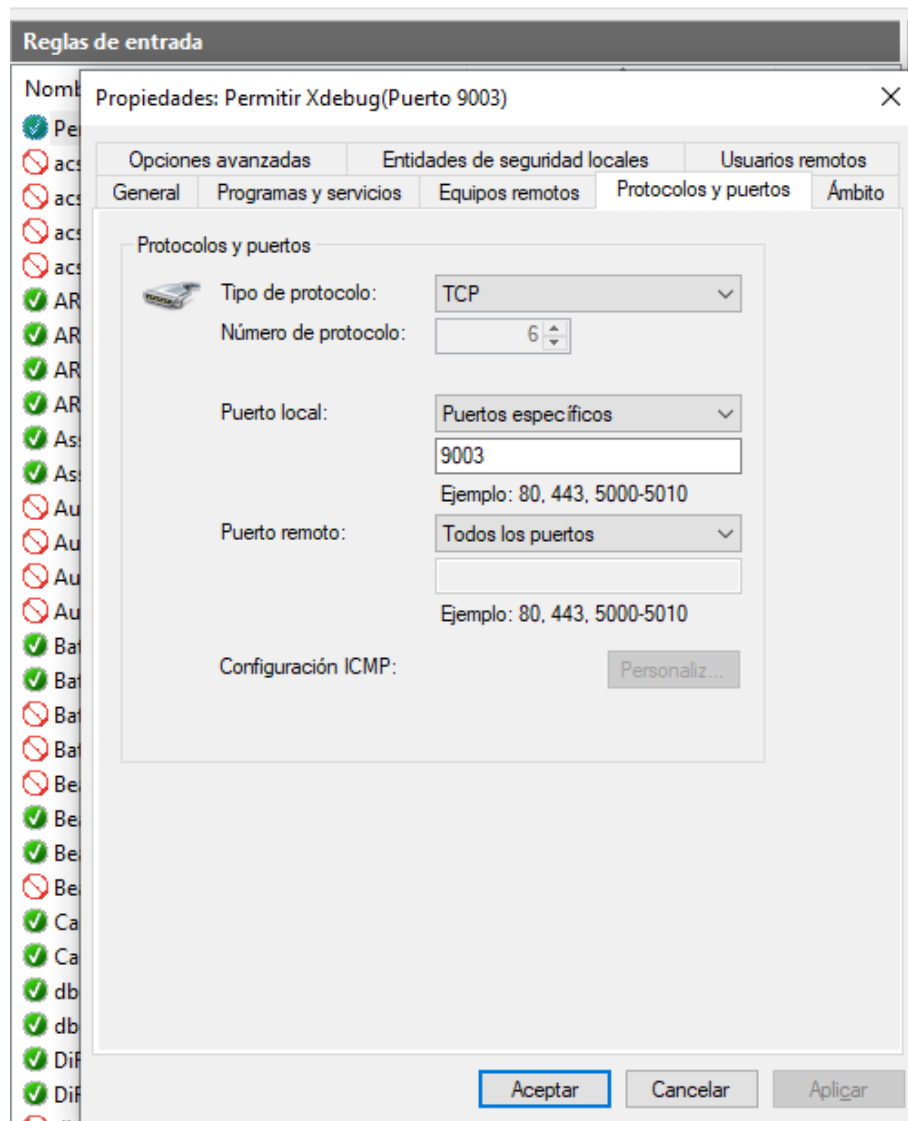
Crear un Hola mundo en PHP

```
<!DOCTYPE html>
<!--
Click nbfs://nbhost/SystemFileS
Click nbfs://nbhost/SystemFileS
-->
<html>
  <head>
    <meta charset="UTF-8">
    <title>APA</title>
  </head>
  <body>
    <?php
      echo 'Hola mundo';
    ?>
  </body>
</html>
```



Configuración local XDEBUG

Permitimos la entrada de datos por el puerto 9003 en el firewall de windows



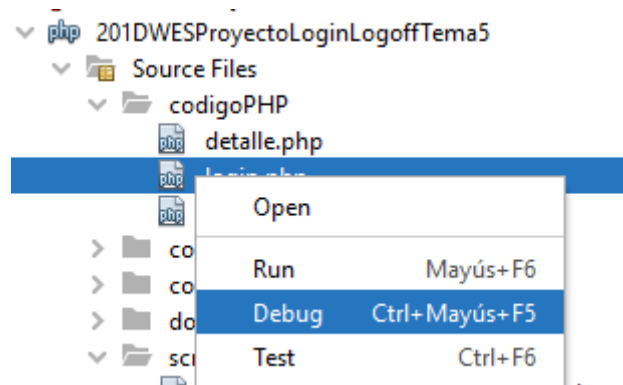
Uso Xdebug

Comprobamos que Apache NetBeans debugea el código

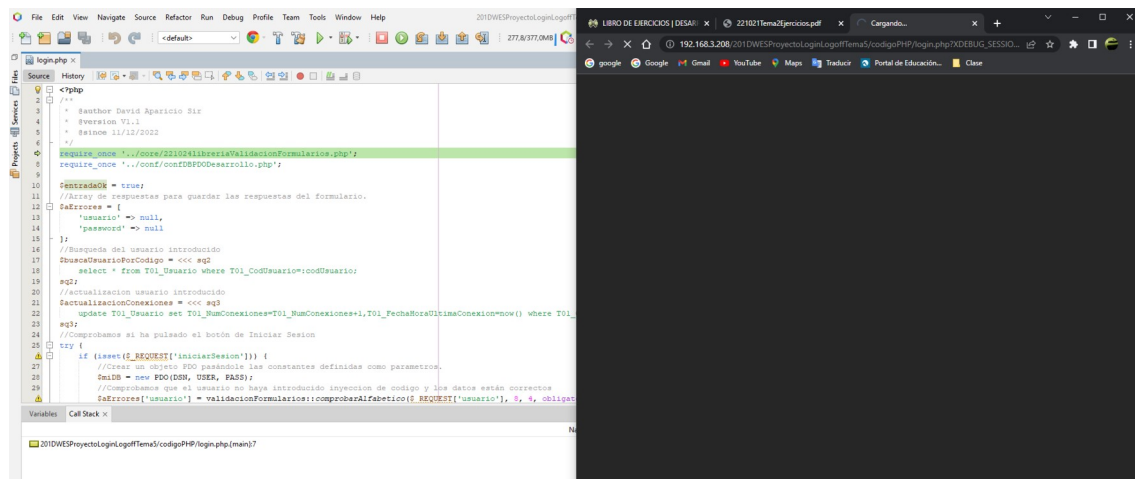
Lo primero que hacemos es seleccionar las líneas de código que sabemos o pensamos que pueden dar error

```
57 if ($entradaOk) {
58     //Iniciamos la sesión
59     session_start();
60     $_SESSION['FechaHoraUltimaConexionAnterior'] = $oUsuario->T01_FechaHoraUltimaConexion;
61     try {
62         $miDB = new PDO(DSN, USER, PASS);
63         //actualizamos el usuario
64         $queryActualizacion = $miDB->prepare($actualizacionConexiones);
65         $queryActualizacion->bindParam(":codUsuario", $oUsuario->T01_CodUsuario);
66         $queryActualizacion->execute();
67         //Volvemos a buscar el usuario para actualizar el objeto usuario
68         $queryConsultaPorCodigo = $miDB->prepare($buscaUsuarioPorCodigo);
69         $queryConsultaPorCodigo->bindParam(':codUsuario', $_REQUEST['usuario']);
70         $queryConsultaPorCodigo->execute();
71         $oUsuario = $queryConsultaPorCodigo->fetchObject();
72     } catch (PDOException $exc) {
73         echo $exc->getMessage();
74     } finally {
75         unset($miDB);
76     }
77     //Establecemos una nueva cookie para el idioma y utilizaremos el metodo time al cual le sumaremos 1800 segundos(media hora)
78     setcookie('idioma', $_REQUEST['idioma'], time()+1800);
79     //Introducimos el usuario en la sesion
80     $_SESSION['usuarioDAW201AppLoginLogoff'] = $oUsuario;
81     header('Location: programa.php');
82     die();
83 } else {
84     ~
85 }
```

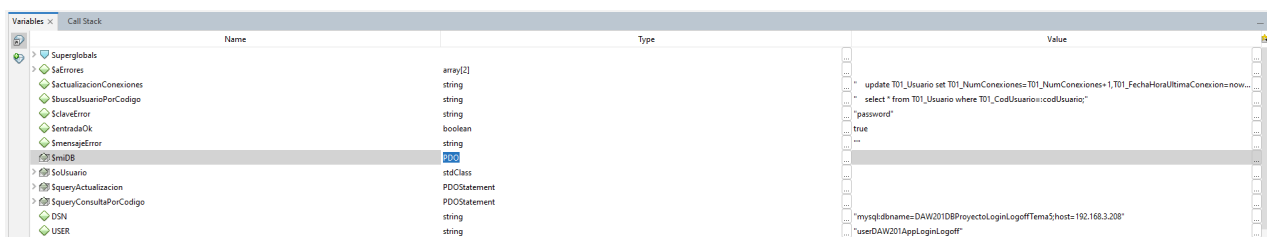
A continuación hacemos clic derecho en el fichero que queremos debugear



Nos abrirá el navegador (en este caso usará chrome) y nos aparecerá un menú

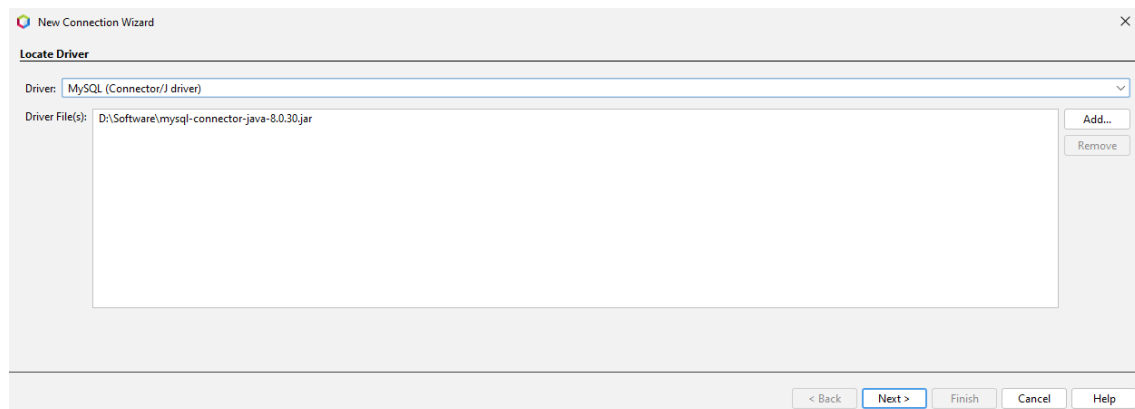


En Variables comprobaremos que las variables estén correctas

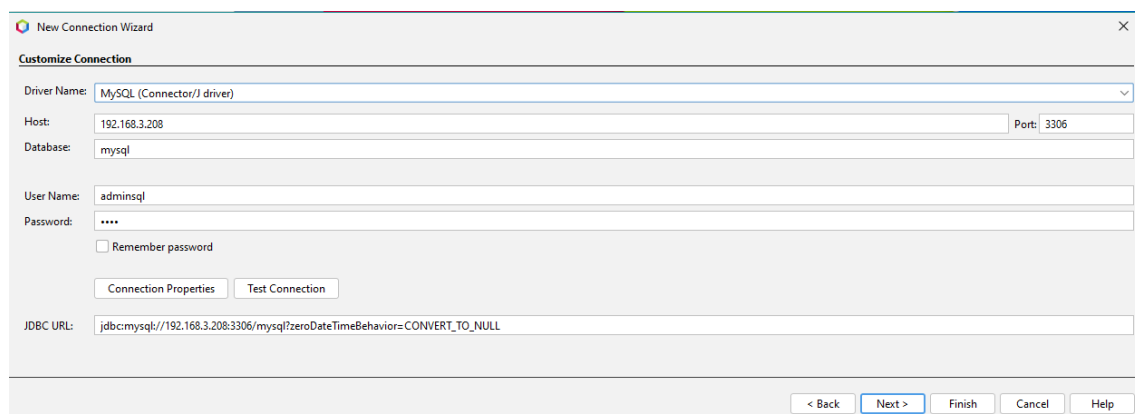


Si estan todas las variables correctas podríamos decir que el programa funciona bien si no, nos tocaria volver a programar las variables que no son correctas

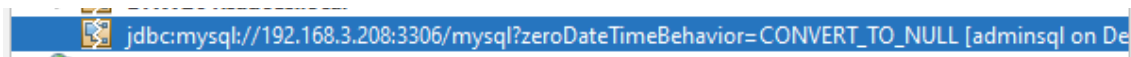
Nueva conexión a la base de datos desde NetBeans



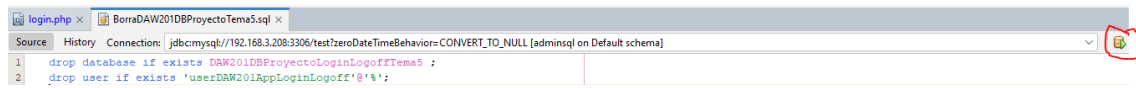
Especificamos donde está el conector de MySQL para NetBeans



Especificamos el host ,la base de datos ,el usuario y la contraseña



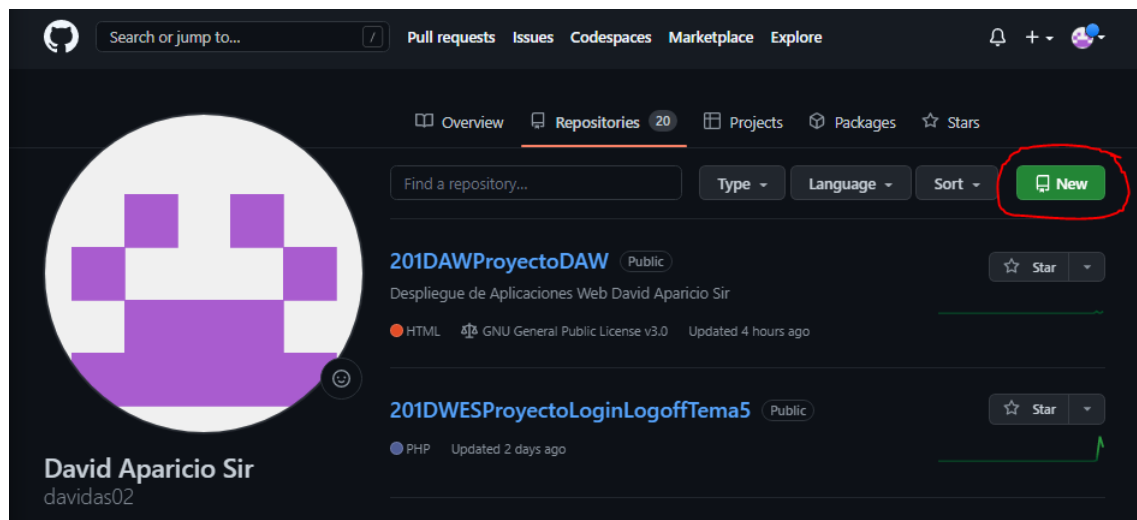
Ejecutar un Script SQL desde NetBeans



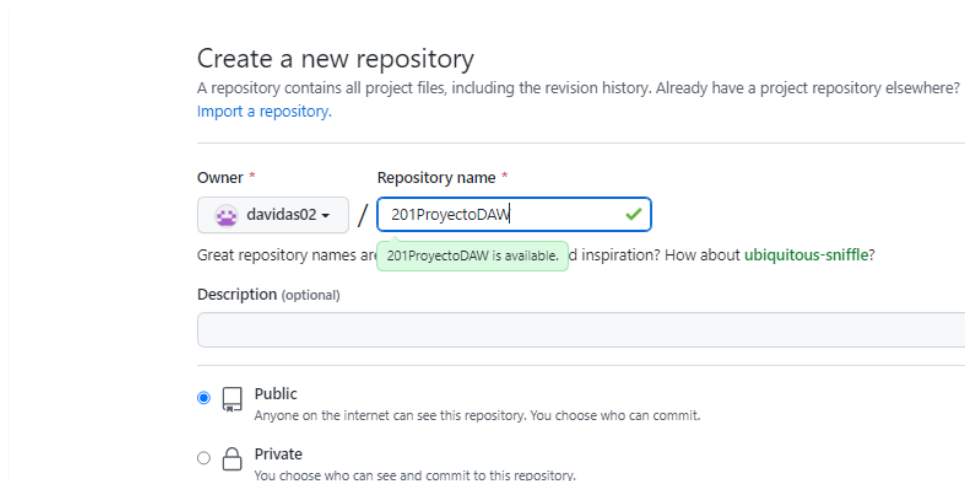
GitHub

Como hacer un repositorio

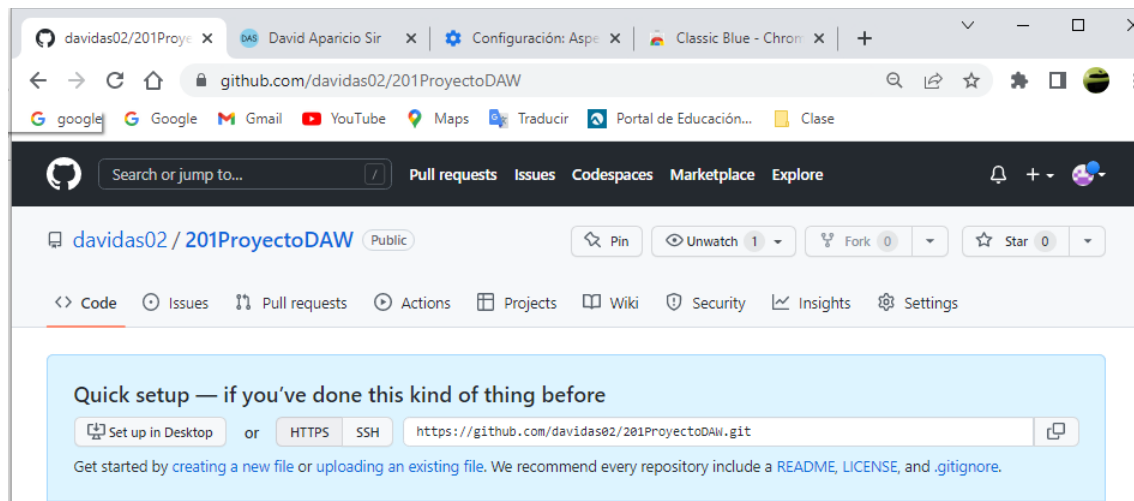
Lo primero que tenemos que hacer es crearlo en github



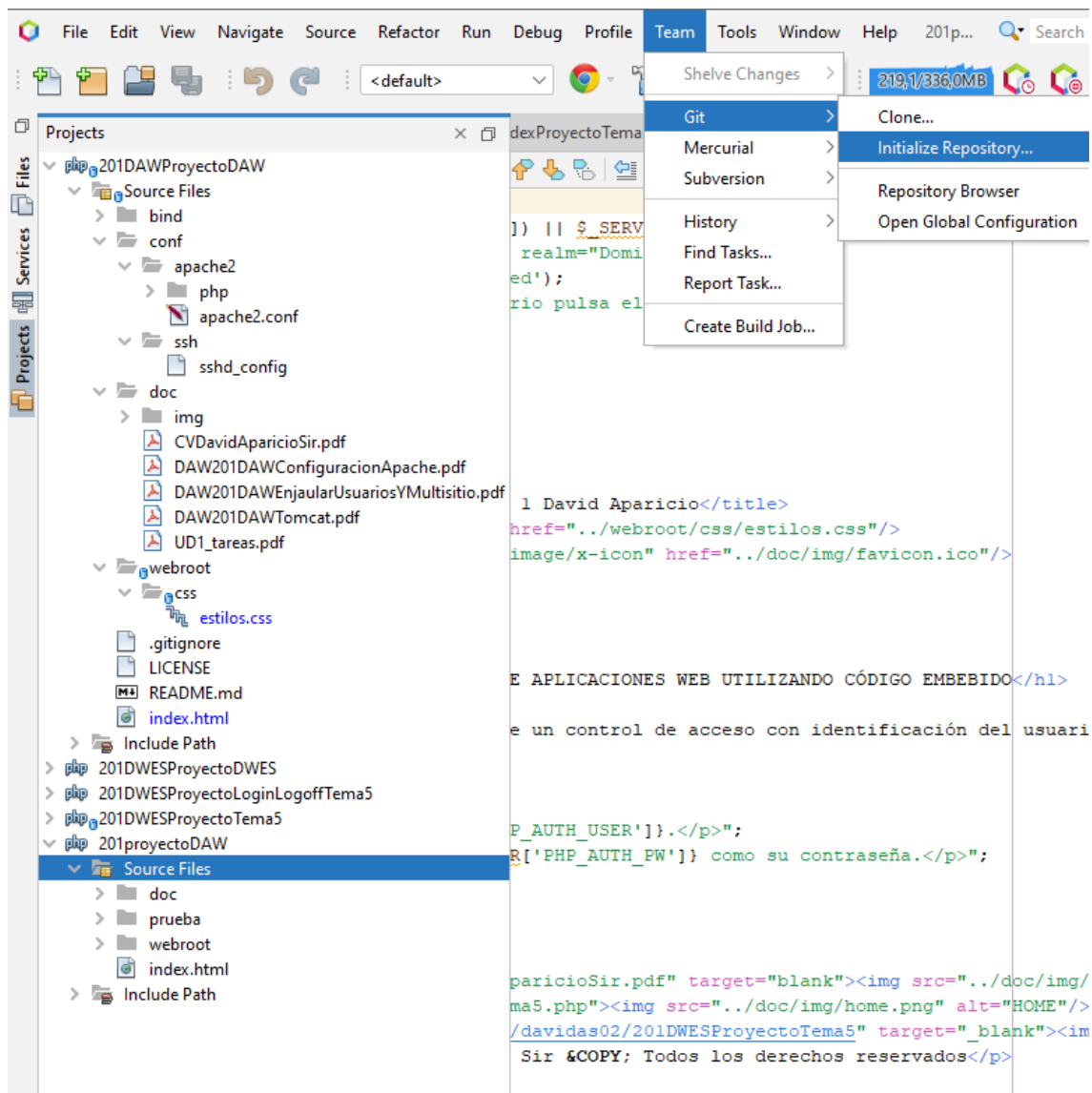
Le damos nombre



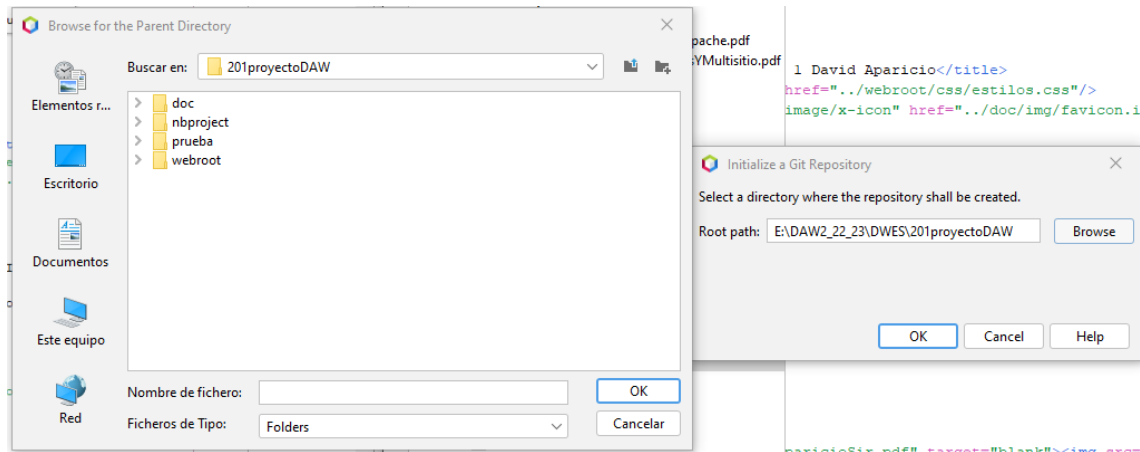
Copiamos la ruta



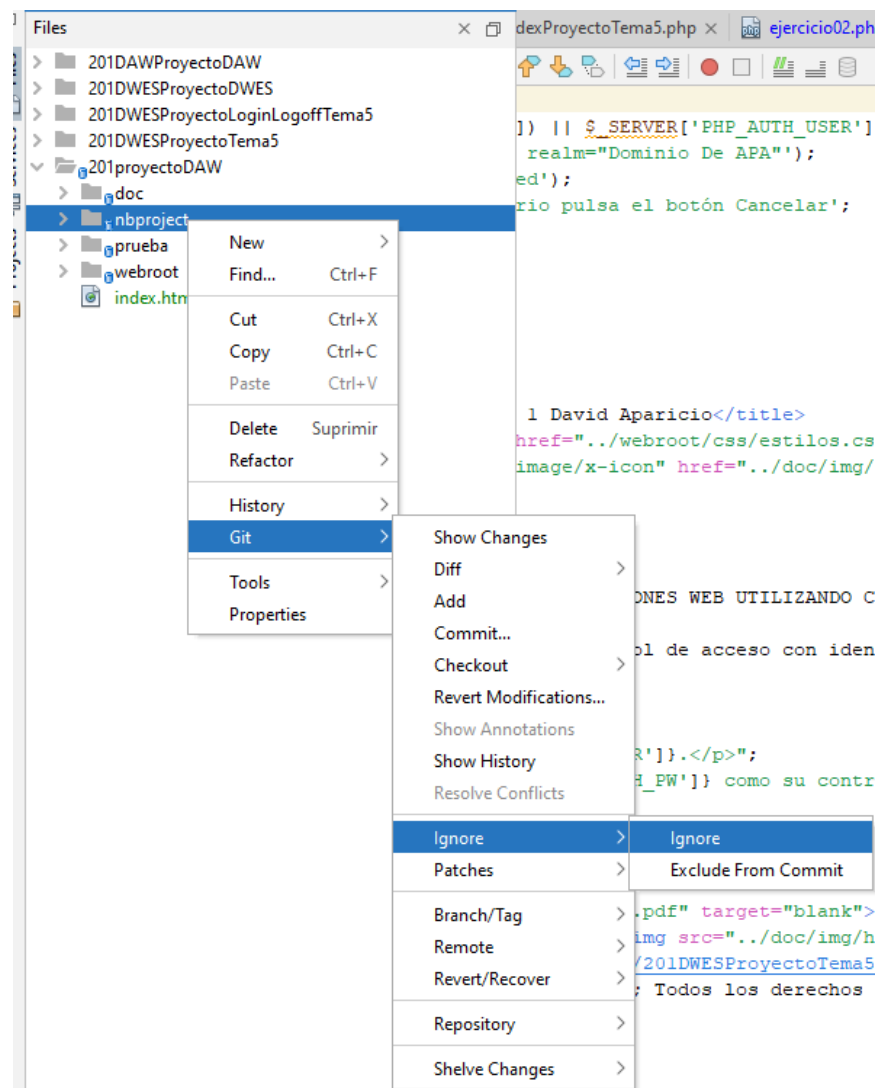
En Netbeans Inicializamos repositorio git



Le indicamos la ruta del repositorio



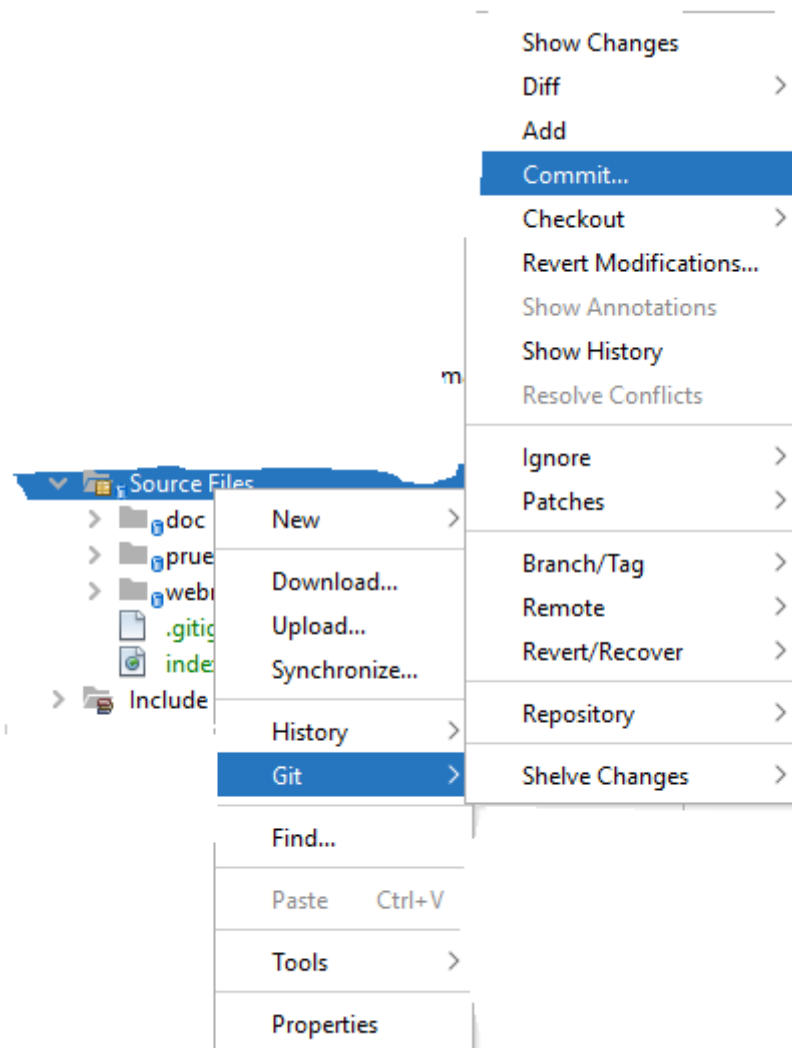
Ignoramos la carpeta nbproject del proyecto



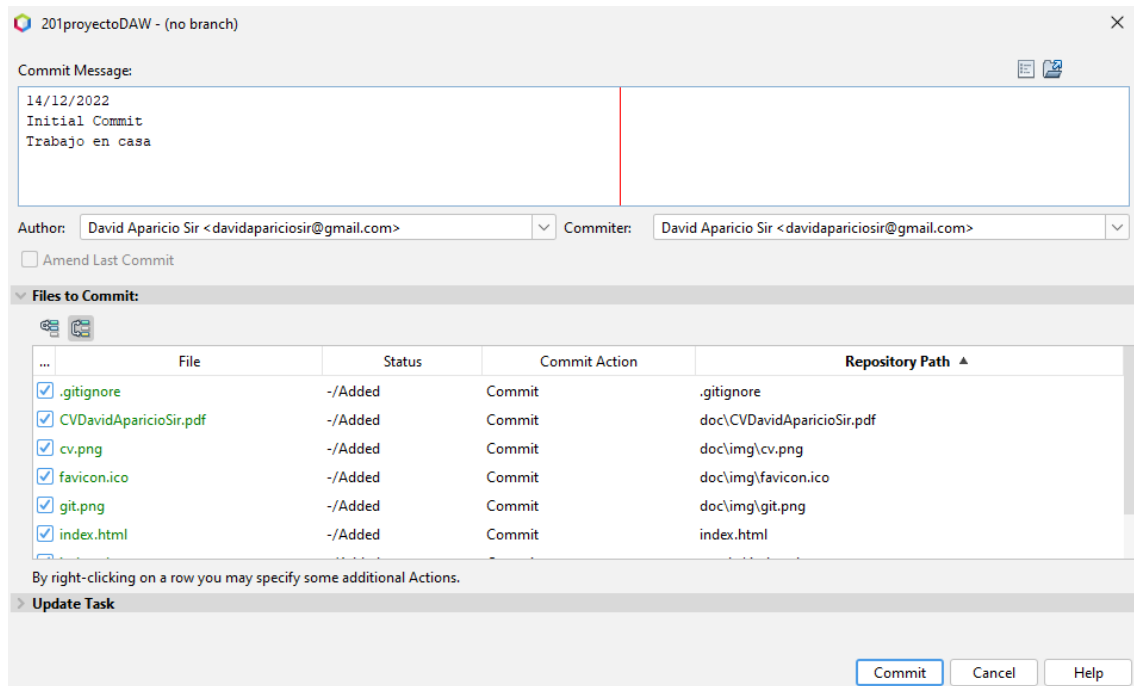
Modificamos el fichero .gitignore para que tambien ignore todos los ficheros del directorio

```
/nbproject/*
```

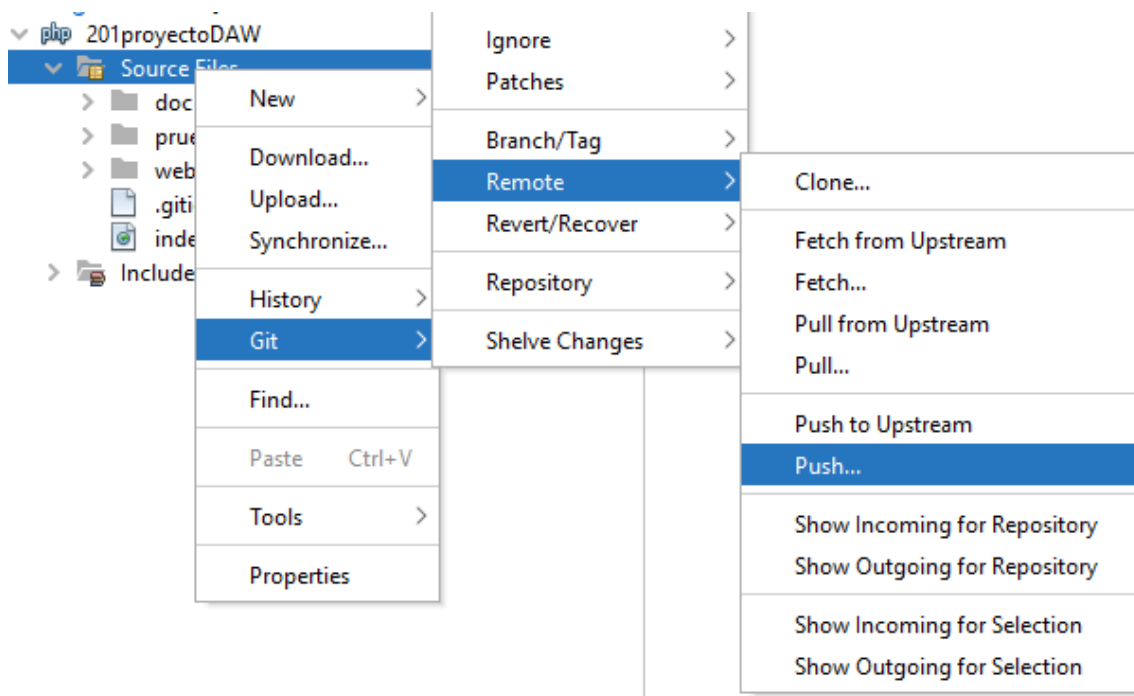
Hacemos un commit



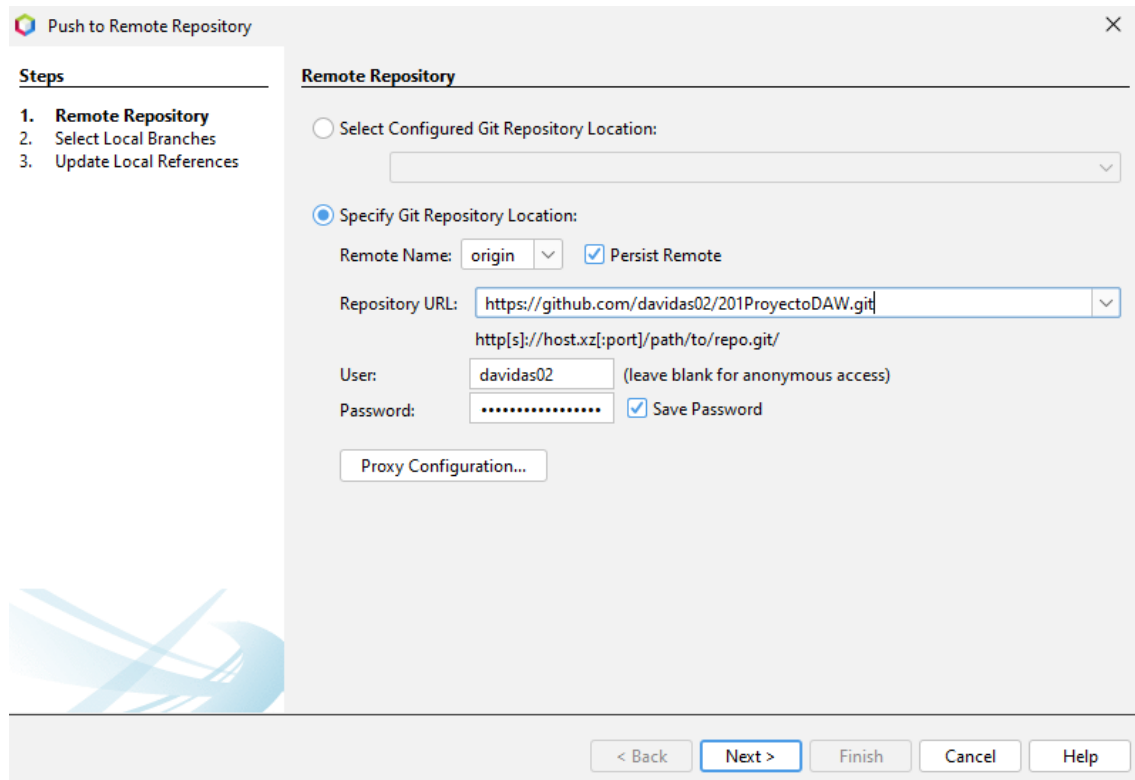
Le damos nombre al commit



Subimos el repositorio local



Le damos la dirección del repositorio de github



Push to Remote Repository

Steps

1. **Remote Repository**
2. Select Local Branches
3. Update Local References

Remote Repository

☐ Select Configured Git Repository Location:

☒ Specify Git Repository Location:

Remote Name: ☒ Persist Remote

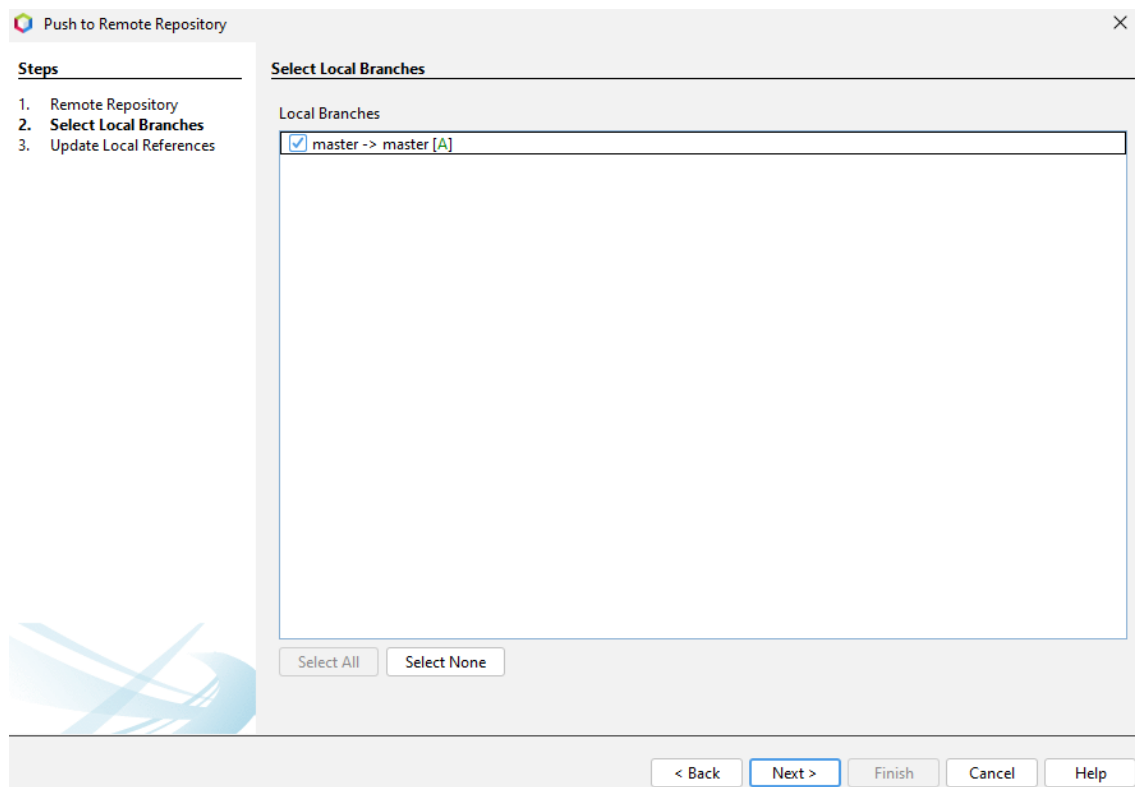
Repository URL:

User: (leave blank for anonymous access)

Password: ☒ Save Password

< Back **Next >** Finish Cancel Help

Seleccionamos las ramas a subir



Push to Remote Repository

Steps

1. Remote Repository
2. **Select Local Branches**
3. Update Local References

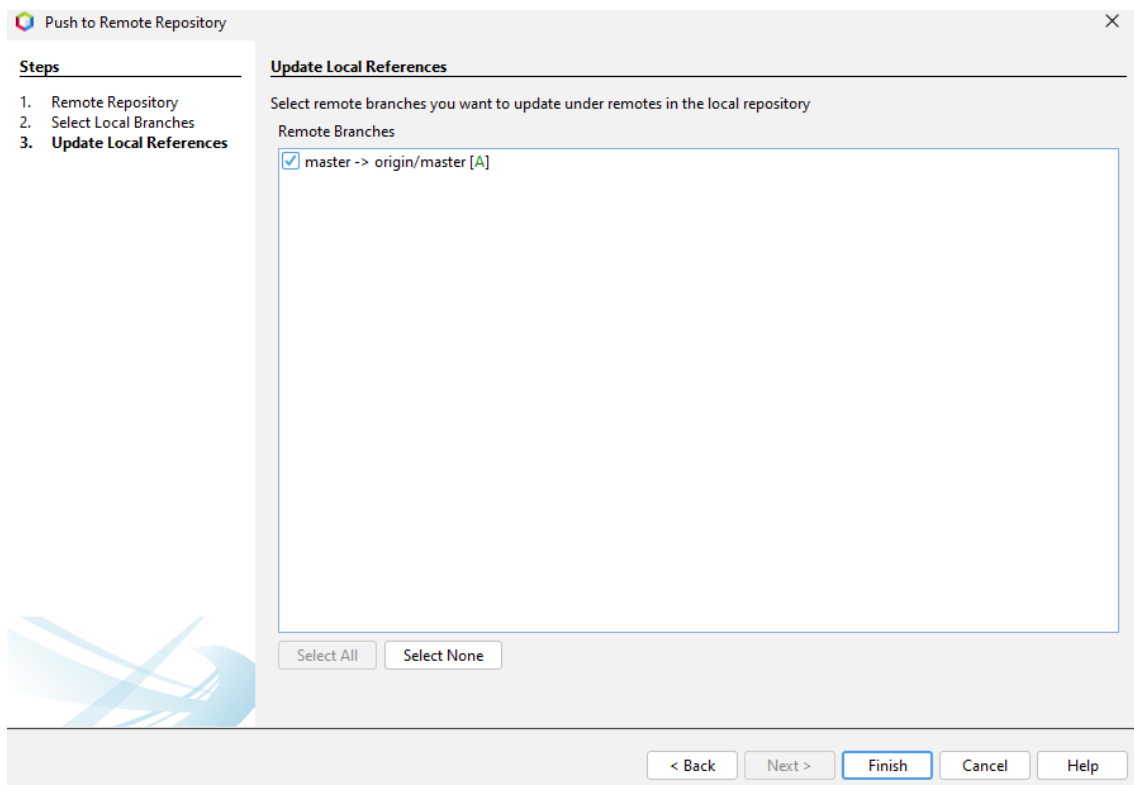
Select Local Branches

Local Branches

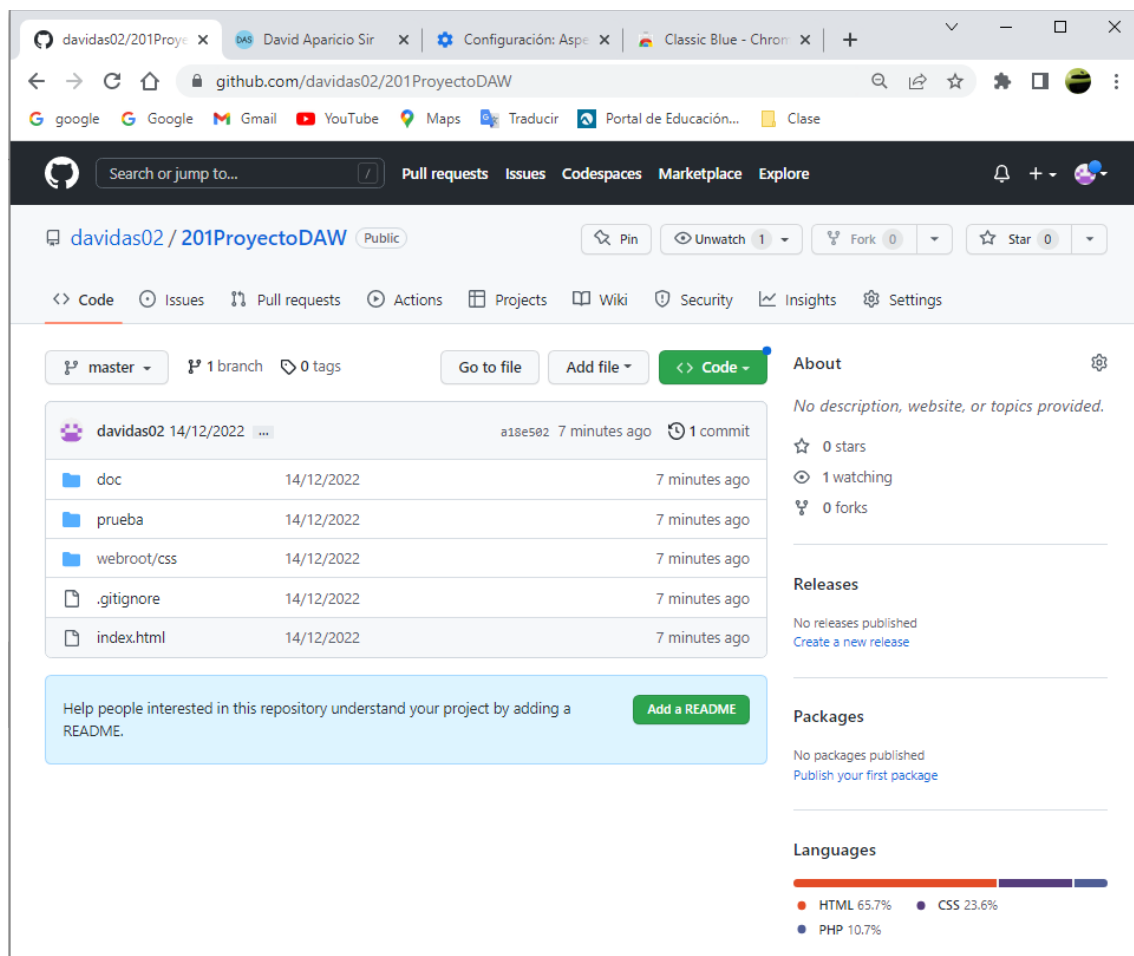
☒ master -> master [A]

< Back **Next >** Finish Cancel Help

Actualizamos las referencias en local

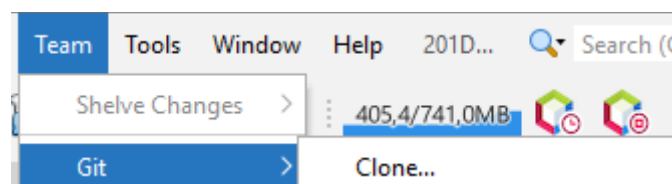


Comprobamos que esté subido

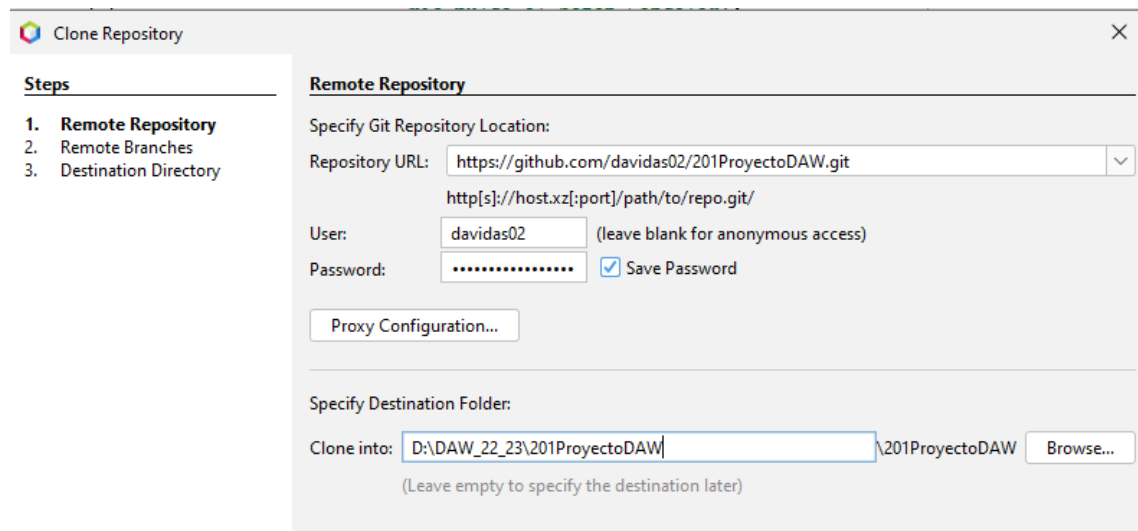


Como clonar un repositorio

Clonamos



Especificamos el repositorio y le damos la carpeta de destino



The screenshot shows the 'Clone Repository' dialog box with the 'Remote Repository' step selected. The 'Repository URL' is set to 'https://github.com/davidas02/201ProyectoDAW.git'. The 'User' is 'davidas02' and the 'Password' is masked with dots. The 'Save Password' checkbox is checked. The 'Clone into' field is set to 'D:\DAW_22_23\201ProyectoDAW'. A 'Browse...' button is next to the field. A 'Proxy Configuration...' button is also visible.

Clone Repository

Steps

1. **Remote Repository**
2. Remote Branches
3. Destination Directory

Remote Repository

Specify Git Repository Location:

Repository URL:

User: (leave blank for anonymous access)

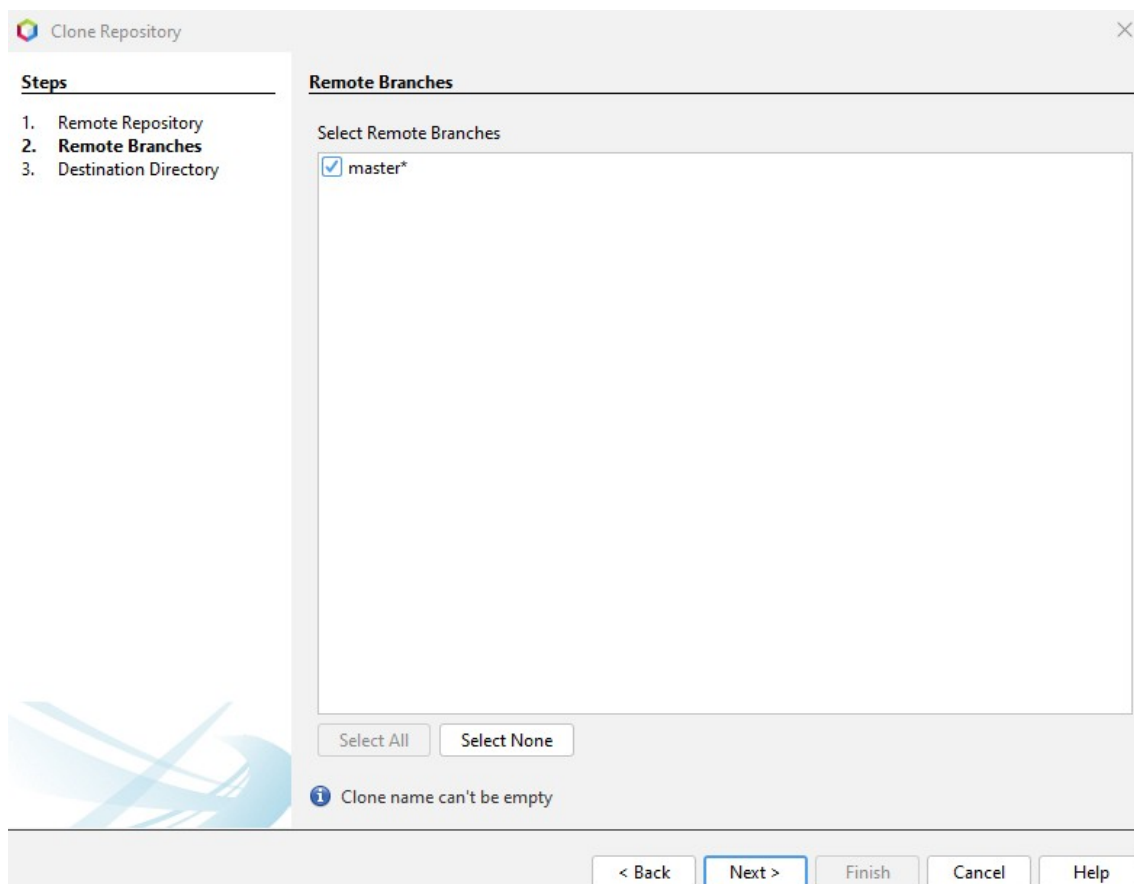
Password: ☒ Save Password

Specify Destination Folder:

Clone into:

(Leave empty to specify the destination later)

Escogemos la/s rama/s que queremos bajar



The screenshot shows the 'Clone Repository' dialog box with the 'Remote Branches' step selected. The 'Select Remote Branches' list contains 'master*' which is checked. There are 'Select All' and 'Select None' buttons. A message at the bottom says 'Clone name can't be empty'. The 'Next >' button is highlighted.

Clone Repository

Steps

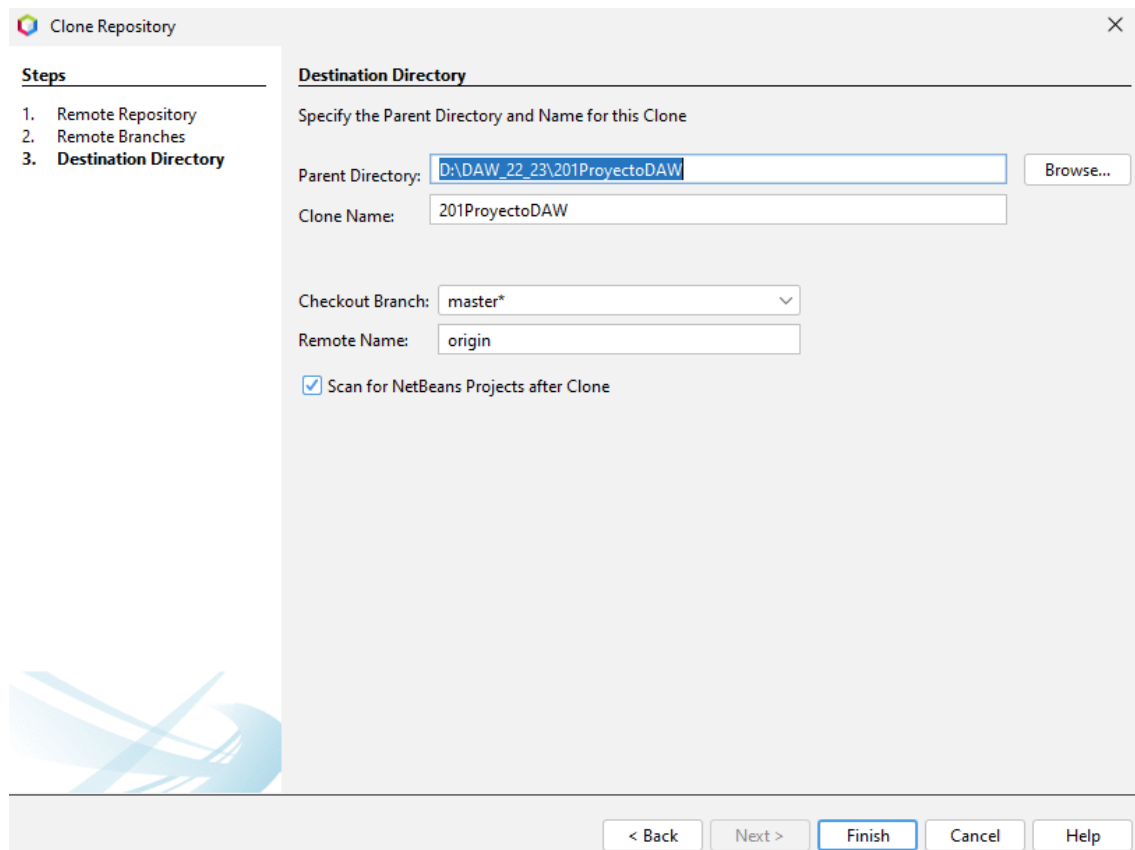
1. Remote Repository
2. **Remote Branches**
3. Destination Directory

Remote Branches

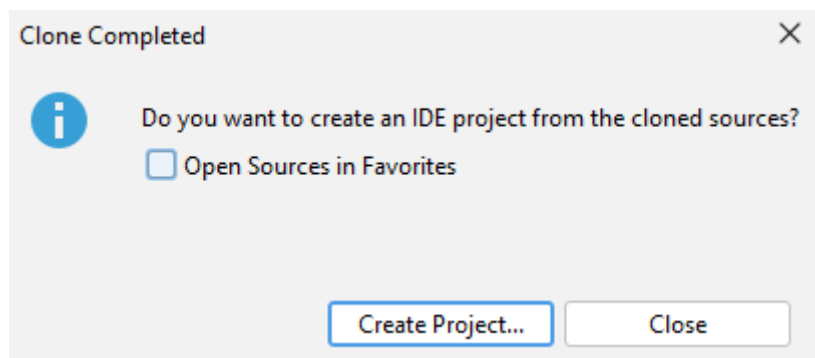
Select Remote Branches

☒ master*

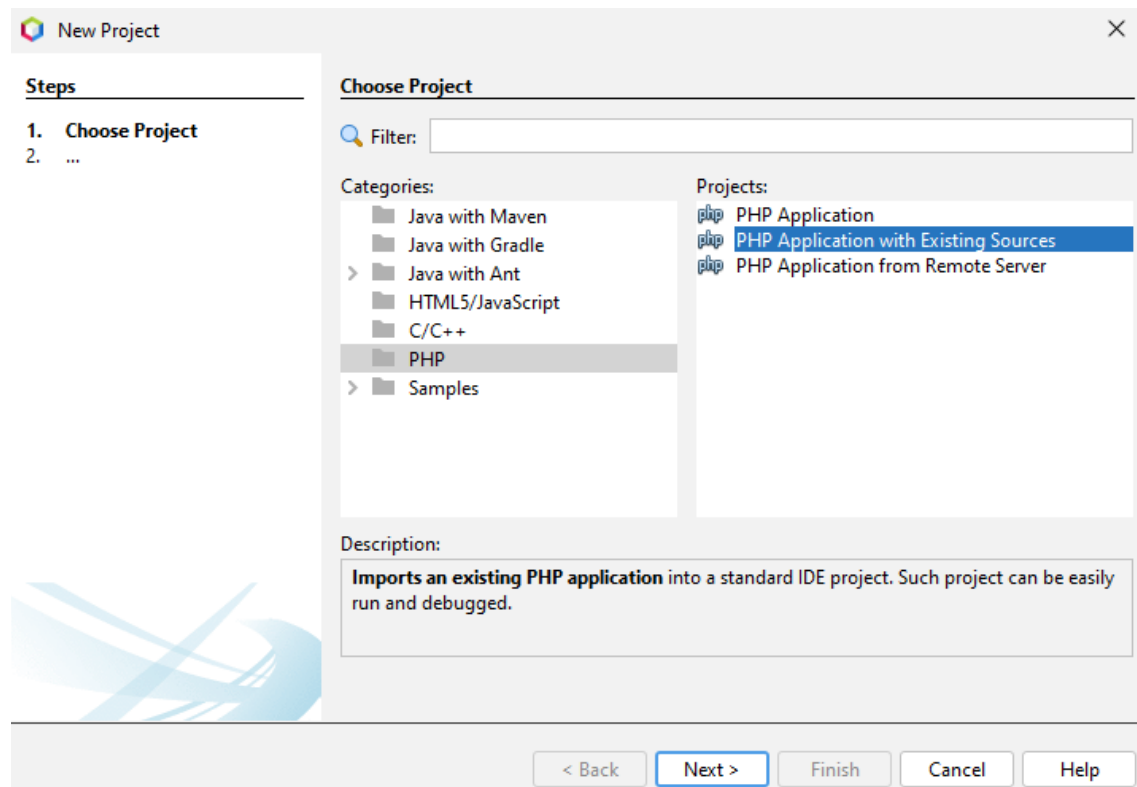
Especificamos el directorio padre, el nombre del directorio la rama en la que queremos empezar y el nombre del repositorio



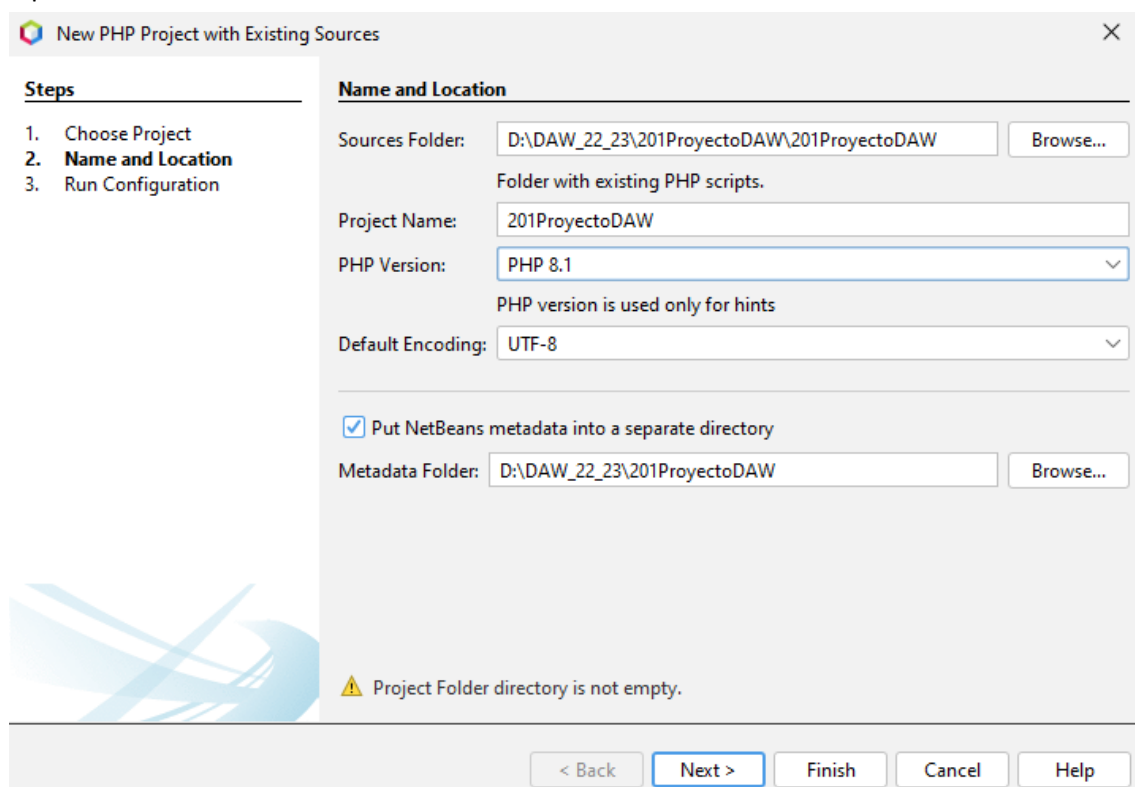
Creamos nuevo proyecto



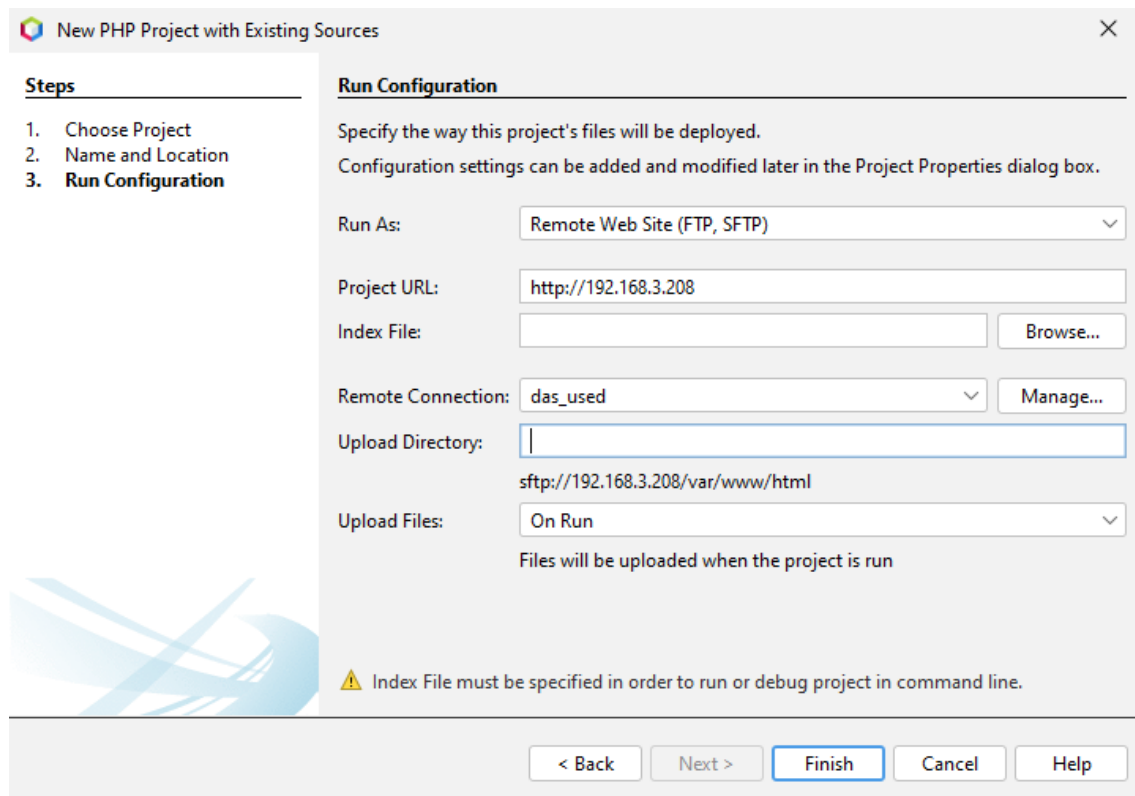
Especificamos aplicación PHP con fuentes existentes



Especificamos la carpeta del proyecto y le ponemos el metadata del proyecto en la carpeta padre



Configuramos donde se va a guardar y ejecutar el proyecto en el servidor

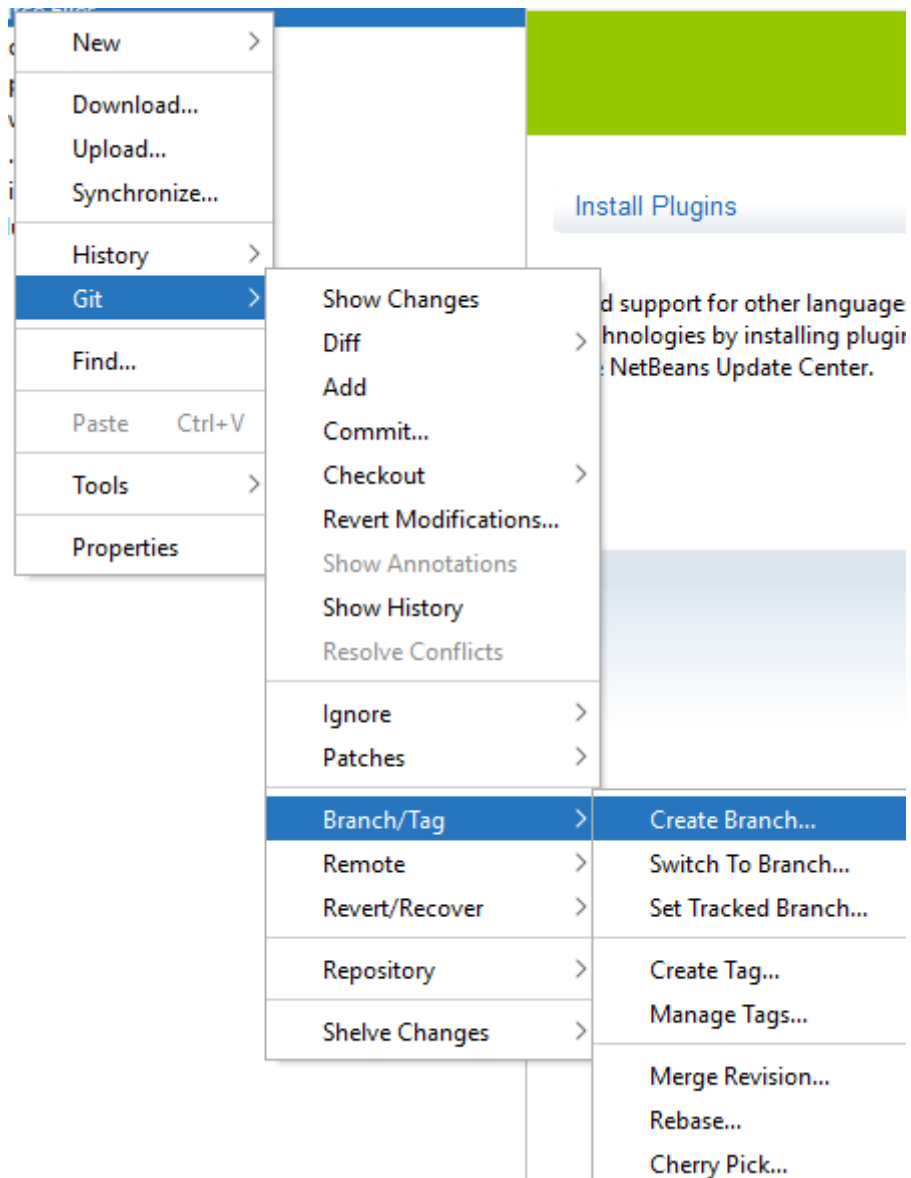


The screenshot shows the 'New PHP Project with Existing Sources' dialog box, specifically the 'Run Configuration' tab. The dialog has a title bar with a close button. On the left, a 'Steps' list shows three steps: '1. Choose Project', '2. Name and Location', and '3. Run Configuration' (which is currently selected). The main area is titled 'Run Configuration' and contains the following fields and options:

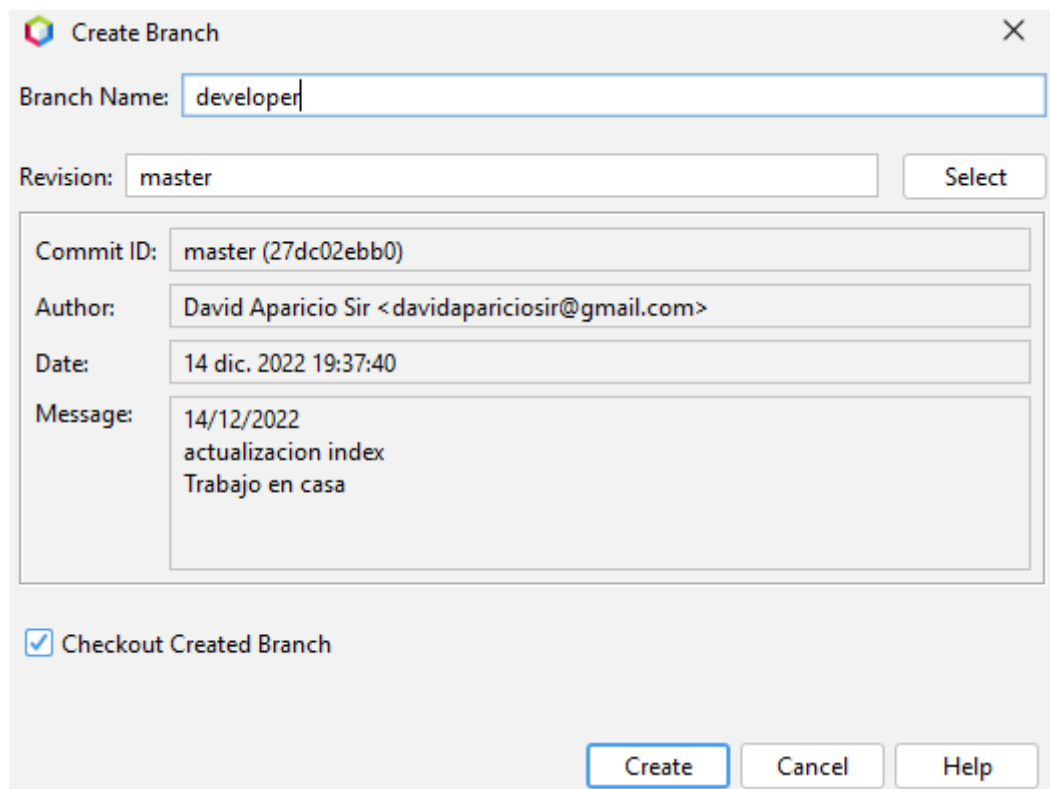
- Run As:** A dropdown menu set to 'Remote Web Site (FTP, SFTP)'.
- Project URL:** A text field containing 'http://192.168.3.208'.
- Index File:** An empty text field with a 'Browse...' button to its right.
- Remote Connection:** A dropdown menu set to 'das_used' with a 'Manage...' button to its right.
- Upload Directory:** A text field containing 'sftp://192.168.3.208/var/www/html'.
- Upload Files:** A dropdown menu set to 'On Run'.

Below the 'Upload Files' dropdown, it says 'Files will be uploaded when the project is run'. At the bottom of the main area, there is a warning icon and the text: 'Index File must be specified in order to run or debug project in command line.' The bottom of the dialog features five buttons: '< Back', 'Next >', 'Finish' (which is highlighted with a blue border), 'Cancel', and 'Help'.

Como hacer una nueva rama



Le damos el nombre que queremos



Create Branch

Branch Name:

Revision:

Commit ID:

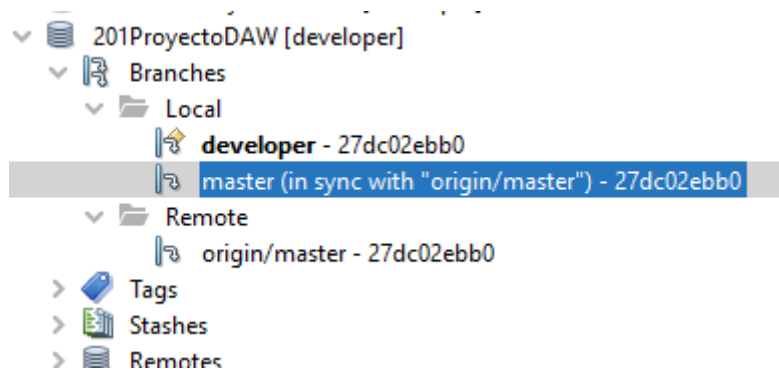
Author:

Date:

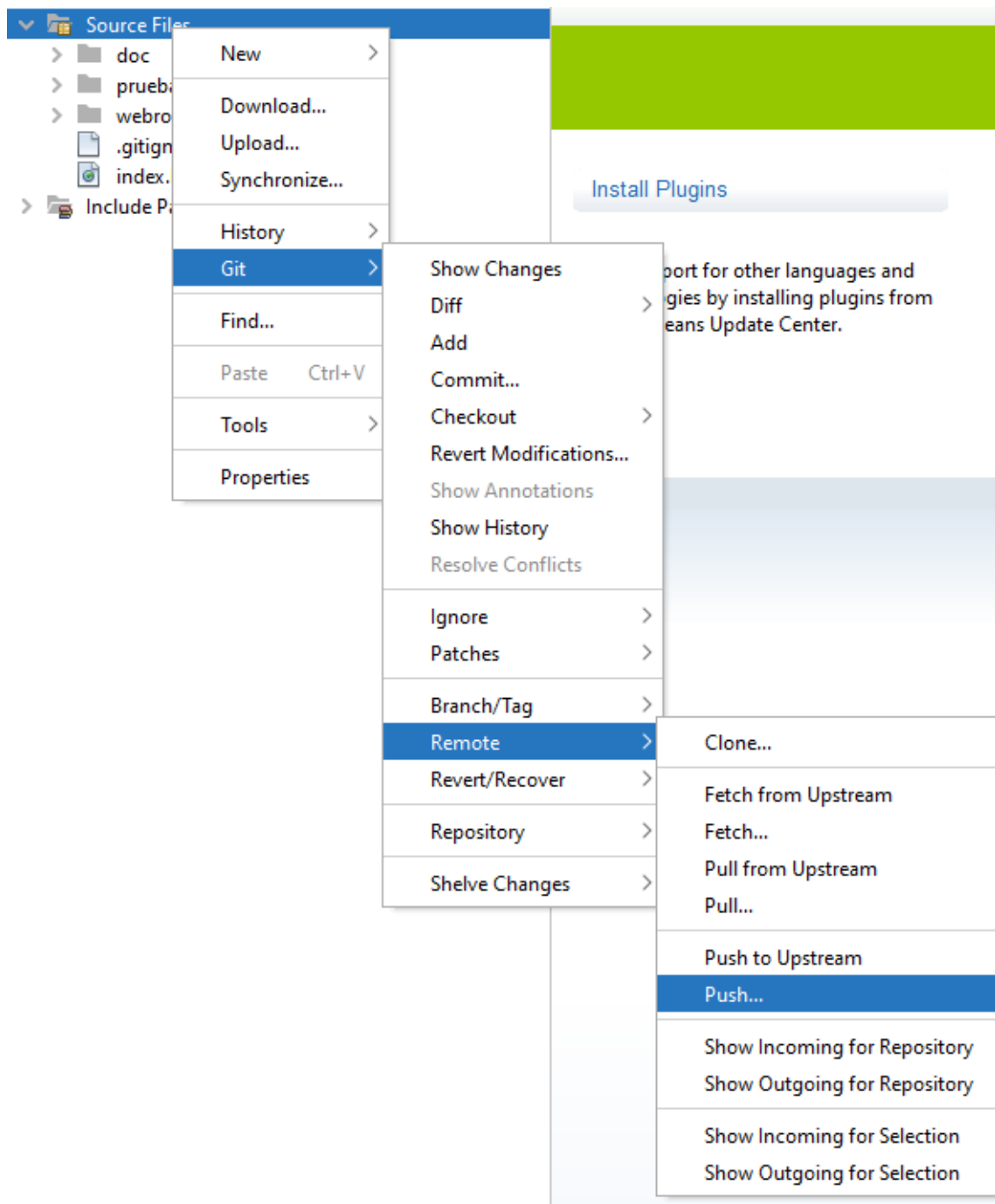
Message:

☒ Checkout Created Branch

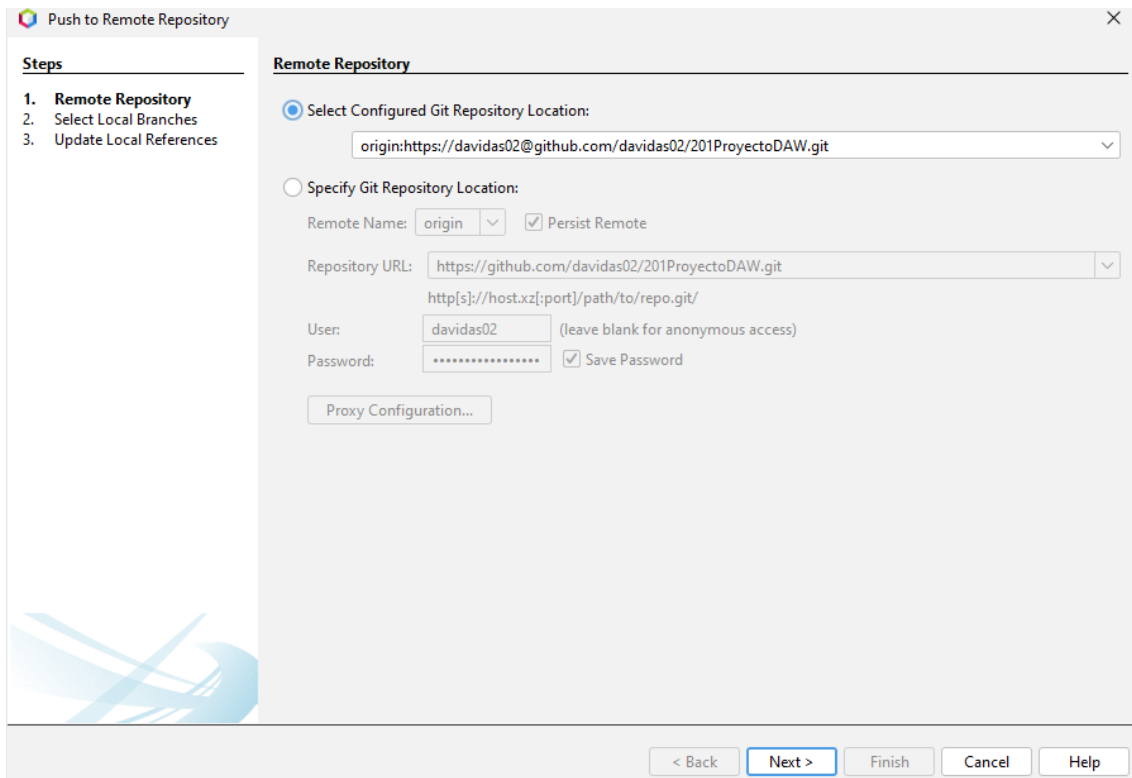
Mostramos las 2 ramas



Subimos la nueva rama al repositorio

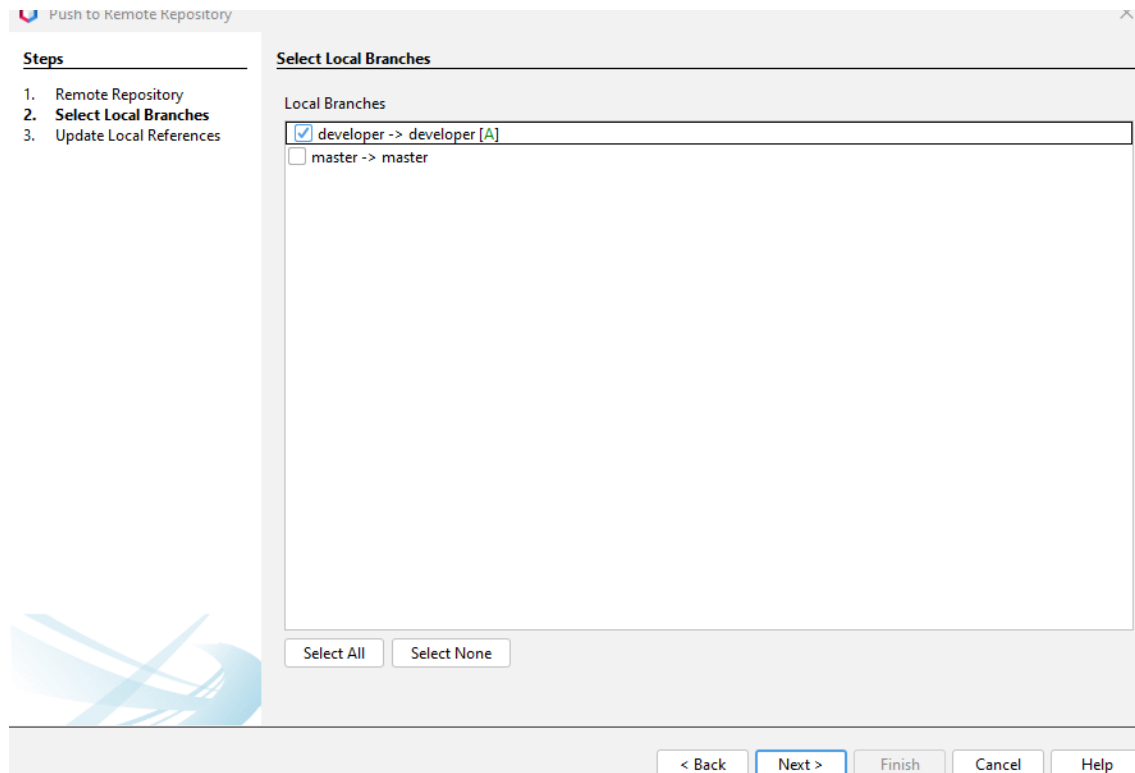


Lo subimos al repositorio del 201proyectoDAW



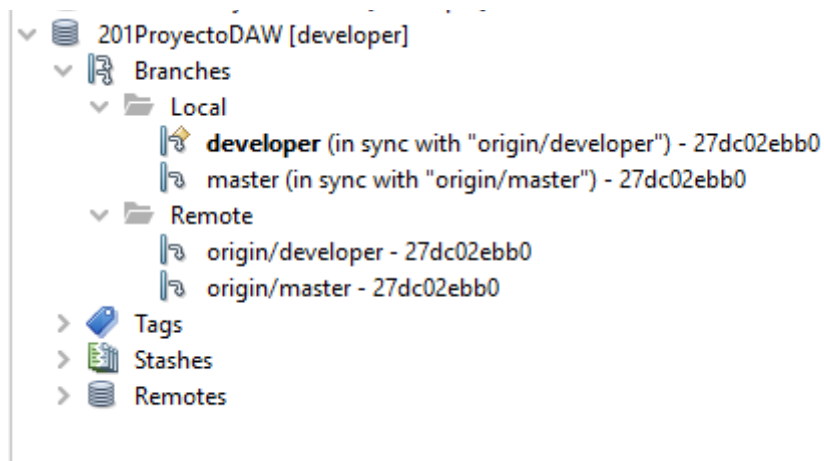
The screenshot shows the 'Push to Remote Repository' dialog box with the 'Remote Repository' tab selected. The 'Steps' panel on the left lists: 1. Remote Repository, 2. Select Local Branches, 3. Update Local References. The main area has two radio buttons: 'Select Configured Git Repository Location' (selected) and 'Specify Git Repository Location'. The selected option shows a dropdown with 'origin:https://davidas02@github.com/davidas02/201ProyectoDAW.git'. The 'Specify' option includes fields for 'Remote Name' (origin), 'Persist Remote' (checked), 'Repository URL' (https://github.com/davidas02/201ProyectoDAW.git), 'User' (davidas02), and 'Password' (masked). A 'Proxy Configuration...' button is at the bottom. Navigation buttons at the bottom are '< Back', 'Next >', 'Finish', 'Cancel', and 'Help'.

Seleccionamos la nueva rama



The screenshot shows the 'Push to Remote Repository' dialog box with the 'Select Local Branches' tab selected. The 'Steps' panel on the left lists: 1. Remote Repository, 2. Select Local Branches, 3. Update Local References. The main area is titled 'Select Local Branches' and contains a list of 'Local Branches'. The first entry is 'developer -> developer [A]' with a checked checkbox. The second entry is 'master -> master' with an unchecked checkbox. At the bottom are 'Select All' and 'Select None' buttons. Navigation buttons at the bottom are '< Back', 'Next >', 'Finish', 'Cancel', and 'Help'.

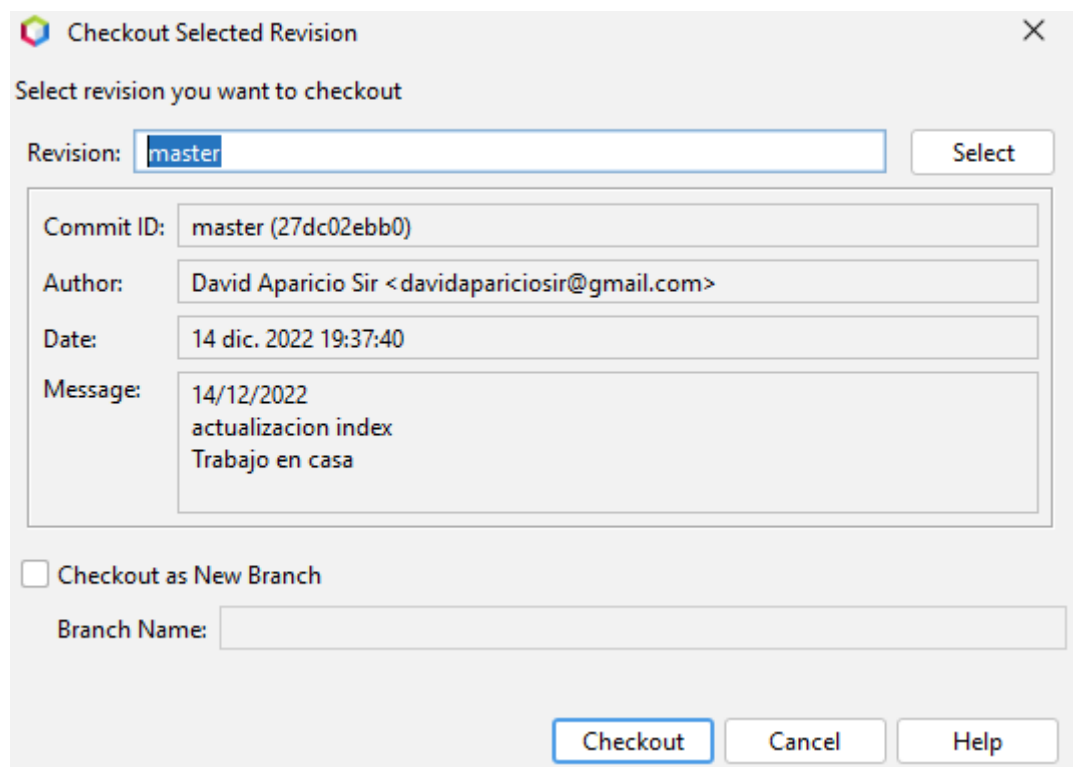
Mostramos con las 2 ramas subidas



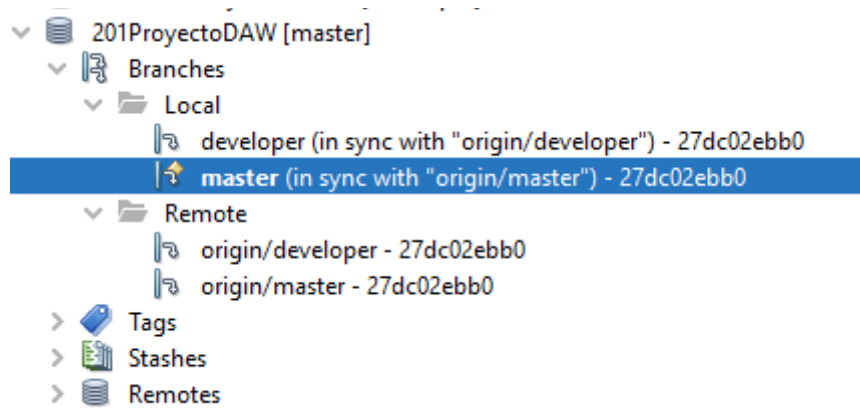
Como cambiar de rama

En este caso partiremos de la rama developer

Hacemos doble clic sobre la rama a la que queremos cambiar y nos aparecerá esta ventana

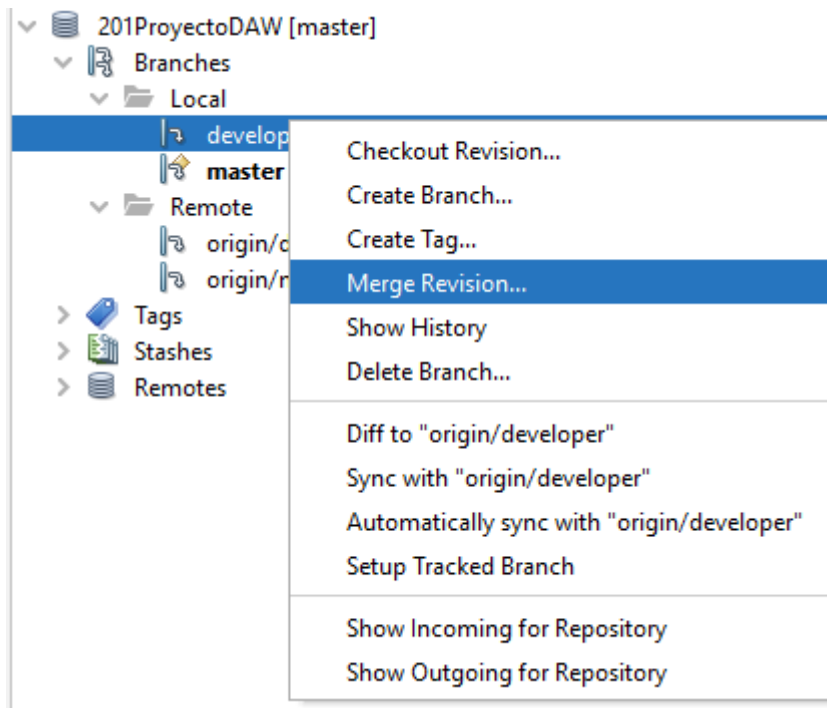


Hacemos clic sobre checkout y ya estaríamos



Como juntar 2 ramas

Estando en la rama a la cual queremos juntar hacemos clic derecho sobre la rama que queremos juntar



Especificamos que nos cree un commit

