

# WCS installation and activation

- Installation
  - Silent mode installation
  - Installation to a different Java versions
    - JDK 12 or 14
    - JDK 15
    - JDK 16
- Acquiring a license and activation
  - Activation using web interface
  - Activation using command line
- Deactivating a license
  - Deactivation using web interface
  - Deactivation using command line
- If activation fails
  - Configuring HTTP proxy if the activation server is not available
- Configuring Firewall and NAT
- IP address configuration
  - Discovering IP addresses in case of NAT
  - Automatic and semi-automatic IP addresses detection

Installation archives of WCS are available for download [at this link](#).

You can download the installation archive directly to the server using wget, for example

```
wget https://flashphoner.com/downloads/builds/WCS/5.2/FlashphonerWebCallServer-5.2.XXXX.tar.gz
```

## Installation

To install WCS you need to unpack the archive and execute the installation script `install.sh`:

```
tar -xvzf FlashphonerWebCallServer-5.2.XXXX.tar.gz
cd FlashphonerWebCallServer-5.2.XXXX
sudo ./install.sh
```

The installer will perform necessary checks and installs WCS to the following directory `/usr/local/FlashphonerWebCallServer`

Installation includes the following steps:

- Reading and accepting of the license agreement
- Specifying IP addresses in case the script was unable to discover them automatically (see [IP address configuration](#))
- A request to add WCS to the Linux server autostart
- Java version checking and obsolete settings removing from `wcs-core.properties` file

As a result, a successful installation message will be shown. The following folders will be created in the `/usr/local/FlashphonerWebCallServer` directory:

- *bin* - WCS executables
- *client* - WCS JavaScript API 1.0, usage examples and stress-tests
- *client2* - WCS JavaScript API 2.0 and usage examples
- *conf* - configuration files
- *lib* - required libraries
- *tools* - tools to debug WCS
- *web* - WCS web interface static pages

## Silent mode installation

Sometimes, WCS can be installed in silent mode if automatic deployment system like Ansible is used to deploy a number of typical instances

```
./install.sh -silent
```

In this case:

- IP addresses detection does not work (`flashphoner.properties` file and other settings are supposed to be overwritten by automatic deployment system)
- `webcallserver.service` is configured to start from root

## Installation to a different Java versions

### JDK 12 or 14

The following settings should be removed from wcs-core.properties file

```
-XX:+UseConcMarkSweepGC  
-XX:+PrintGCDateStamps  
-XX:+PrintGCDetails
```

The following setting

```
-Xloggc:/usr/local/FlashphonerWebCallServer/logs/gc-core-
```

should be replaced by

```
-Xlog:gc*:/usr/local/FlashphonerWebCallServer/logs/gc-core-:time
```

### JDK 15

In addition to setting changes made for JDK 12 or 14, the following settings should be removed from wcs-core.properties file

```
-XX:+UseCMSInitiatingOccupancyOnly  
-XX:CMSInitiatingOccupancyFraction=70
```

### JDK 16

In addition to setting changes made for JDK 12, 14, 15, the following settings should be added to wcs-core.properties file

```
--illegal-access=permit
```

## Acquiring a license and activation

You can purchase a commercial license online here: <http://flashphoner.com/prices>. Also, a free 30-days trial version is available at this page: [http://flashphoner.com/get\\_trial/?product=wcs5](http://flashphoner.com/get_trial/?product=wcs5)

### Activation using web interface

On first logon to WCS web interface by address <https://yourserver:8444/admin/>, where yourserver is your server hostname with by default user admin (password admin), the request for license number is displayed:

Please enter your license

Enter your license number and press Next

Please enter your license

\*\*\*\*\*\_\*\*\*\*\_\*\*\*\*\_\*\*\*\*\_\*\*\*\*\*

Next

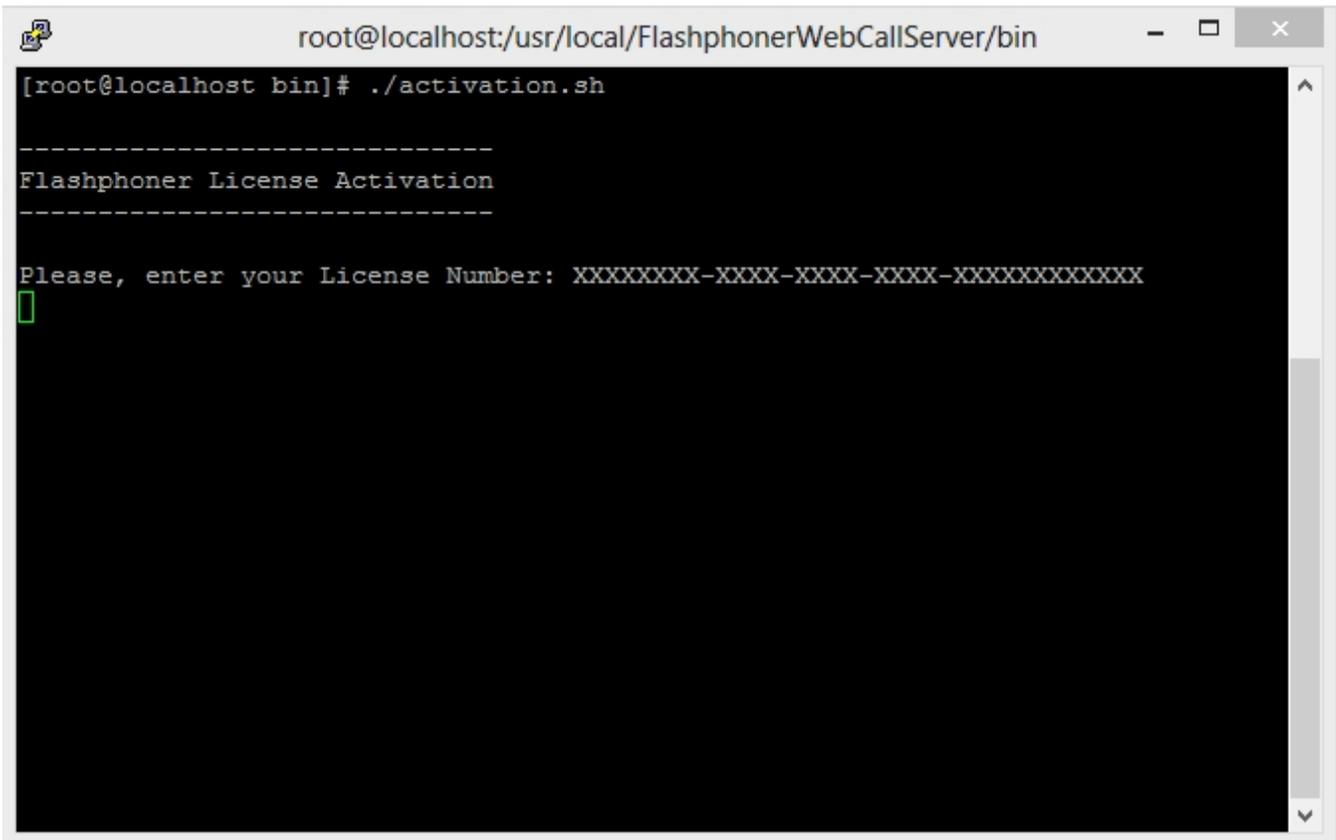
If activation was successful, log in page will be displayed.

## Activation using command line

Use this script to activate the license:

```
cd /usr/local/FlashphonerWebCallServer/bin
sudo ./activation.sh
```

The script asks you to enter the license number:



```
root@localhost:/usr/local/FlashphonerWebCallServer/bin
[root@localhost bin]# ./activation.sh
-----
Flashphoner License Activation
-----
Please, enter your License Number: XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX
█
```

Enter the license number to finish the activation.

## Deactivating a license

To activate the same license on another server, for example, if you transfer WCS to another server, deactivate the license on the old server and activate it again on the new server.

## Deactivation using web interface

Log in to WCS web interface by address <https://yourserver:8444/admin/>, where yourserver is your server hostname. Press "License" button. The license key page will be displayed:



```
proxy1.flashphoner.com
proxy2.flashphoner.com
```

**Important!** Proxy settings do not allow quote symbols! The following example will NOT work:

```
-Dhttp.proxyHost="proxy2.flashphoner.com"
-Dhttp.proxyPort="3128"
-Dhttps.proxyHost="proxy2.flashphoner.com"
-Dhttps.proxyPort="3128"
-Dhttp.nonProxyHosts="localhost|127.0.0.1|10.*|169.254.169.254"
```

## Configuring Firewall and NAT

For correct operation of the server, all ports listed in the table in the [Server core](#) section must be open for incoming traffic (UDP) or for establishing connection (TCP).

The table below lists example NAT rules for routing of incoming traffic in case the traffic comes to the external IP address and has to be routed to the server where WCS is installed. The table shows the minimum required number of ports necessary for operation of the server. Depending on the specific functions and modules (see the [Architecture](#) section), the set of rules may be extended in accordance with the table in the [Server core](#) section. The same ports must be opened in the firewall of the Linux server.

The table lists default ports. You can configure the WCS server to other other ports (see the [Settings](#) section).

Type	Protocol	Port Range	Source
Custom UDP Rule	UDP	30000-33000	0.0.0.0/0
Custom TCP rule	TCP	8081	0.0.0.0/0
Custom TCP Rule	TCP	8444	0.0.0.0/0
Custom TCP Rule	TCP	8443	0.0.0.0/0
Custom TCP Rule	TCP	30000-33000	0.0.0.0/0
Custom TCP Rule	TCP	1935	0.0.0.0/0
SSH	TCP	22	0.0.0.0/0

SSH access via the standard port 22 is specified here only to administer the Linux server itself. Hence, the minimum required set of ports is:

- 1935 - RTMP
- 8081 - built-in WCS web server that works via HTTP
- 8443 - Secure Websocket
- 8444 - built-in WCS web server that works via HTTPS
- [30000-33000] - SIP, Media, RTSP

Description of SSL certificate configuration for Secure Websockets and HTTPS can be found in this section: [SSL-certificates management](#).

## IP address configuration

Proper installation requires discovering of the external IP address of your server and the address of the network interface. The installation script attempts to detect the address automatically, and if this has failed for some reasons, the script asks you to enter addresses manually.

If you followed recommendation of the 'Requirements and preparations for installing' section and began with a server with a static and public IP address that matches the one of the network interface, the IP address of your server can be discovered with a simple command

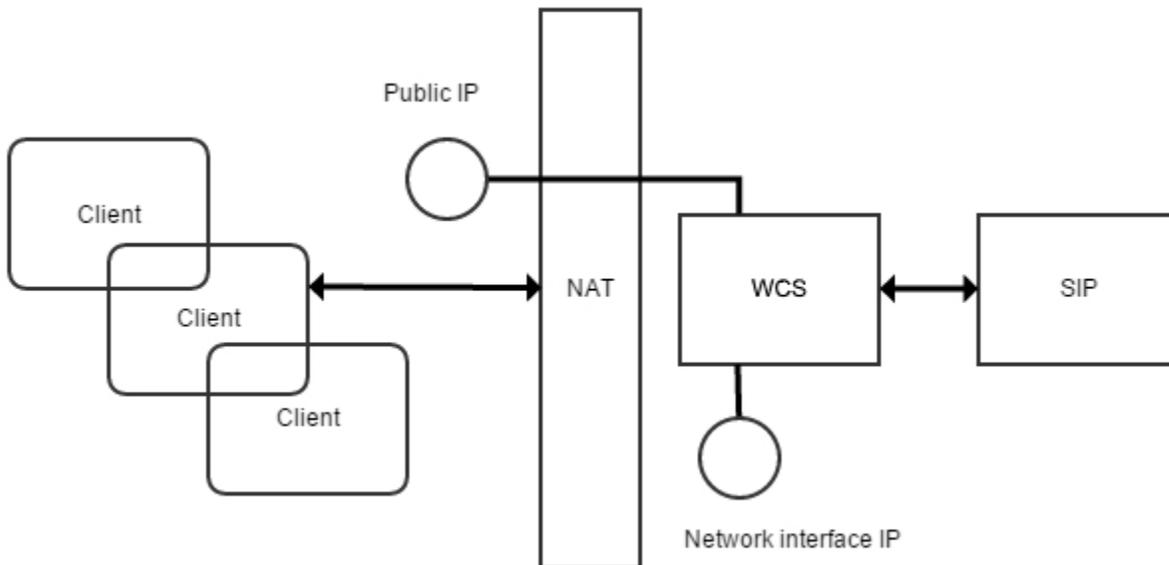
```
#ifconfig
```

```
root@CentOS-64-64-minimal:~  
[root@CentOS-64-64-minimal ~]# ifconfig  
eth0      Link encap:Ethernet  HWaddr 00:24:21:9C:37:ED  
          inet addr:188.40.69.75  Bcast:188.40.69.75  Mask:255.255.255.255  
          inet6 addr: 2a01:4f8:100:43a7::2/64  Scope:Global  
          inet6 addr: fe80::224:21ff:fe9c:37ed/64  Scope:Link  
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1  
          RX packets:993166521  errors:0  dropped:0  overruns:0  frame:0  
          TX packets:914983127  errors:0  dropped:0  overruns:0  carrier:0  
          collisions:0 txqueuelen:1000  
          RX bytes:1172968732177 (1.0 TiB)  TX bytes:897517351983 (835.8 GiB)  
  
lo        Link encap:Local Loopback  
          inet addr:127.0.0.1  Mask:255.0.0.0  
          inet6 addr: ::1/128  Scope:Host  
          UP LOOPBACK RUNNING  MTU:16436  Metric:1  
          RX packets:16397063  errors:0  dropped:0  overruns:0  frame:0  
          TX packets:16397063  errors:0  dropped:0  overruns:0  carrier:0  
          collisions:0 txqueuelen:0  
          RX bytes:2488566815 (2.3 GiB)  TX bytes:2488566815 (2.3 GiB)  
  
[root@CentOS-64-64-minimal ~]# █
```

In this example, the IP address of the server is 188.40.69.75. Write the address down or copy it. You will need it later on installing.

## Discovering IP addresses in case of NAT

Often the WCS5 server has to be placed behind a corporate NAT or on the rented server in a data center that does not provide dedicated static IP addresses. A good example of this case is Amazon EC2, where servers are behind NAT.



When the WCS server is to be deployed behind NAT, you need to discover two IP addresses.

1. The external IP address or Public IP not necessarily belongs to the WCS server, but traffic that goes to this external IP address should be obligatory redirected to WCS5.
2. Network interface IP address or Private IP - this is a real address assigned to the network interface. Here WCS will open sockets to interact with the network.

For example, a test server on Amazon EC2 has the external IP address of: 54.189.212.111, and the network interface address is: 172.30.21.25. If your server is behind NAT in regard to browser clients, write down or copy these IP addresses. You will need them later, when you will configure the server.

## Automatic and semi-automatic IP addresses detection

Since build [5.2.921](#), WCS tries to automatically detect server IP addresses on startup if they are not set, or server is starting in cloud environment supporting AWS API or Google Cloud API endpoints. If IP addresses cannot be detected on startup, it may be done manually using the following command

```
cd /usr/local/FlashphonerWebCallServer/bin
sudo ./webcallserver set-ip
```

This command:

- tries to detect IP addresses automatically;
- if this cannot be done, asks user for additional data
- writes results to flashphoner.properties file

It is recommended to use this command if there are some problems with IP addresses detection behind NAT.