

# How to Build Open5GS .deb Packages

This guide will walk you through the process of building .deb packages for Open5GS from source on a Debian-based system. It includes the installation of necessary dependencies, cloning the Open5GS repository, downloading subprojects, building the packages, and installing them.

## Prerequisites

Ensure that you have a working Debian-based system (such as Ubuntu) with access to the internet to download dependencies.

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## Step 1: Update Package List

Before installing any software, it is a good practice to update the list of available packages to ensure you are installing the latest versions.

```
sudo apt update
```

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## Step 2: Install Required Dependencies

Install the necessary dependencies for building Open5GS and its components. These include development tools, libraries, and utilities required for the build process.

```
sudo apt install -y git build-essential meson ninja-build debhelper  
devscripts equivs pkg-config libmnl-dev libyaml-dev libmicrohttpd-dev  
libgnutls28-dev libgcrypt20-dev \  
libsctp-dev libmongoc-dev libbson-dev libnghttp2-dev libtallic-dev libidn11-  
dev libidn2-dev python3-pip python3-setuptools python3-wheel flex bison cmake  
libtins-dev libcurl4-gnutls-dev
```

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## Step 3: Clone the Open5GS Repository

Navigate to the `/usr/src` directory and clone the Open5GS GitHub repository.

```
cd /usr/src  
git clone https://github.com/open5gs/open5gs.git  
cd open5gs
```

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## Step 4: Download Subprojects

Open5GS uses subprojects (like `prometheus-client-c`, `libtins`, and others) that are required for the build. Use the following command to download them.

```
meson subprojects download
```

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## Step 5: Build the .deb Packages

Now that you have all the required dependencies and subprojects, you can build the `.deb` packages. The following command will create the `.deb` package files in the parent directory.

```
dpkg-buildpackage -b -uc -us
```

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## Step 6: Install the .deb Packages

After the build process is complete, you will have several `.deb` packages in the parent directory. You can install them using one of the following methods:

### Install a Single Package

To install a specific package (e.g., `open5gs-hss_2.7.5_amd64.deb`):

```
sudo dpkg -i open5gs-hss_2.7.5_amd64.deb
```

### Install All Packages at Once

To install all the `.deb` packages that were built:

```
sudo dpkg -i *.deb
```

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## Step 7: Resolve Dependencies (if any)

After installing the packages, if you encounter any missing dependencies, you can resolve them with the following command:

```
sudo apt --fix-broken install
```

This command will automatically install any dependencies required by the installed packages.

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