

# Manual: Building UHD-Fairwaves on Windows

## 1. Prerequisites – Install Required Tools

Before building UHD-Fairwaves, ensure the following tools are installed and configured.

### 1.1 Python

- Download Python 3.10.x (e.g., 3.10.10) from:  
<https://www.python.org/downloads/release/python-31010/>
- During installation:
  - Check 'Add Python to PATH'.
  - Install for all users.

### 1.2 Visual Studio 2022 Community Edition

- Download from: <https://visualstudio.microsoft.com/vs/community/>
- During installation, select:
  - Desktop development with C++ workload.
  - Ensure MSVC, Windows SDK, and CMake components are checked.

### 1.3 CMake

- Download from: <https://cmake.org/download/>
- Select 'Add CMake to system PATH for all users' during installation.

### 1.4 Git

- Download from: <https://git-scm.com/download/win>
- Add Git to PATH during installation.

## 2. Install Dependencies via vcpkg

We will use vcpkg to install Boost, pkgconf, and other UHD dependencies.

### 2.1 Clone and Bootstrap vcpkg

```
cd %USERPROFILE%\Desktop
git clone https://github.com/microsoft/vcpkg.git
cd vcpkg
.\bootstrap-vcpkg.bat
```

### 2.2 Install Boost Libraries

```
.\vcpkg install boost-atomic:x64-windows boost-chrono:x64-windows
boost-thread:x64-windows boost-system:x64-windows boost-date-time:x64-
windows boost-program-options:x64-windows boost-random:x64-windows
boost-serialization:x64-windows boost-test:x64-windows boost-regex:x64-
windows boost-log:x64-windows boost-format:x64-windows boost-
filesystem:x64-windows boost-graph:x64-windows
```

### 2.3 Install pkgconf

```
.\vcpkg install pkgconf:x64-windows
```

## 2.4 Integrate vcpkg with Visual Studio

```
.\vcpkg integrate install
```

## 3. Build and Install Official UHD

### 3.1 Clone UHD

```
cd %USERPROFILE%\Desktop
git clone https://github.com/EttusResearch/uhd.git
cd uhd
```

### 3.2 Create Build Directory

```
mkdir build
cd build
```

### 3.3 Configure UHD (x64 Example)

```
cmake .. -G "Visual Studio 17 2022" -A x64 ^
-
DCMAKE_TOOLCHAIN_FILE=C:/Users/Yashal/vcpkg/scripts/buildsystems/vcpkg.
cmake
```

### 3.4 Build UHD in Release Mode

```
cmake --build . --config Release
```

### 3.5 Install UHD

```
cmake --install . --config Release
```

## 4. Build UHD-Fairwaves

### 4.1 Clone UHD-Fairwaves

```
cd %USERPROFILE%\Desktop
git clone https://github.com/fairwaves/UHD-Fairwaves.git
cd UHD-Fairwaves/host
```

### 4.2 Create Build Directory

```
mkdir build
cd build
```

### 4.3 Configure UHD-Fairwaves

```
cmake -G "Visual Studio 17 2022" -A x64 .. ^
-DCMAKE_PREFIX_PATH="C:/UHD_Custom"
```

### 4.4 Build UHD-Fairwaves

```
cmake --build . --config Release
```

## 5. Notes & Troubleshooting

- Ensure all dependencies are built for the same architecture (x64).
- If pkg-config is not found, verify pkgconf from vcpkg is installed and integration is active.

- Use -A arm64 instead of -A x64 if building for ARM64.
- Run all commands in Developer Command Prompt for VS 2022.