# ConBee II – ZigBee USB Gateway

# The universal Zigbee USB gateway

- Unites Zigbee devices of many vendors
- A cloud free solution
- strong signal range via power-amplifier
- works with popular Home Automation Systems

## **Technical specification**

Name	Description
Rated voltage	DC 5,0 V
Transmission power	max. 10 mW
Signal range	200 m in free line of sight
Radio frequency	2.4 GHz
Radio standard	IEEE 820.15.4 / Zigbee
Flash memory	256 kByte
Storage temperature	-20 °C bis 55 °C
Operating temperature	-20 °C bis 55 °C
Operating systems	Microsoft Windows 7 / 10, Ubuntu, Raspbian, Docker
Dimensions	60 mm × 18 mm × 9 mm

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## Installation

The deCONZ application is a tool to configure, control and monitor Zigbee networks with the ConBee II.

The following sections describe the installation steps of deCONZ for various platforms.

## Supported platforms

- Raspbian
- <u>Ubuntu</u>
- <u>Docker</u>
- Windows 7
- Windows 10

## Connection

To ensure a strong radio signal, the use of a USB extension cable is recommended.

#### Helps in following situations:

• Interference with housing and peripherals

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- Devices are not controllable
- Problems when pairing new devices
- Low signal range

## Raspbian

#### Supported Raspberry Pi models and distributions

- Raspberry Pi 1, 2B, 3B and 3B+
- Raspbian Jessie
- Raspbian Stretch

#### Note

The following steps describe the manual installation of deCONZ. Alternatively a preinstalled <u>SD-card</u> <u>image</u> can be used.

#### Installation

1. Set user USB access rights

```
sudo gpasswd -a $USER dialout
```

Note: Changes to access rights only become active after logging out and in or after a restart.

2. Import Phoscon public key

```
3. wget -O - http://phoscon.de/apt/deconz.pub.key | \
        sudo apt-key add -
```

4. Configure the APT repository for deCONZ

#### Stable

```
sudo sh -c "echo 'deb http://phoscon.de/apt/deconz \
    $(lsb_release -cs) main' > \
    /etc/apt/sources.list.d/deconz.list"
```

#### Beta (alternative)

sudo sh -c "echo 'deb http://phoscon.de/apt/deconz \
 \$(lsb\_release -cs)-beta main' > \
 /etc/apt/sources.list.d/deconz.list"

#### 5. Update APT package list

sudo apt update

6. Install deCONZ

sudo apt install deconz

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After the installation deCONZ can be started via the application menu.

Menu > Programming > deCONZ

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e Coordinator									
me									
st Seen 22:36:57									
Common Info									
NWK	0x0000								
IEEE	0x00212effff0								
Node Descriptor	2400 2402 5								
Frequency Band	2400 - 2483.5								
Complex Descriptor	folco								
Manufacturar Code	ov1014								
Manufacturer Code	90								
Max Jucoming Transfer Size	61								
Max Outgoing Transfer Size	61								
MAC Canabilities	01					<b>0x0000</b>			
Alternate PAN Coordinator	true								
Device Type	FFD					0021201111030490			
Power Source	Mains								
Receiver On When Idle	true								
Security Support	false								
Server Mask									
Primary Trust Center	false								
Backup Trust Center	false								
Primary Binding Table Cache	false								
Backup Binding Table Cache	false								
Primary Discovery Cache	false	-							
Backup Discovery Cache	false								
Network Manager	true								
Descriptor Capabilities	follow.								
Extended Active Endpoint List	Taise								
Extended Simple Descriptor Lis	taise	w.							

Now the first Zigbee devices can be paired via the Phoscon App. Further information can be found in the <u>Phoscon App documentation</u>.

## Ubuntu

## **Supported Ubuntu versions**

- Ubuntu 16.04 LTS 64-Bit
- Ubuntu 18.04 LTS 64-Bit

#### Installation

1. Set user USB access rights

sudo gpasswd -a \$USER dialout

Note: Changes to access rights only become active after logging out and in or after a restart.

- 2. Import Phoscon public key
- 3. wget -O http://phoscon.de/apt/deconz.pub.key | \

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Kontakt



```
sudo apt-key add -
```

4. Configure the APT repository for deCONZ

#### Stable

```
sudo sh -c "echo 'deb [arch=amd64] http://phoscon.de/apt/deconz \
    $(lsb_release -cs) main' > \
    /etc/apt/sources.list.d/deconz.list"
```

#### Beta (alternative)

```
sudo sh -c "echo 'deb [arch=amd64] http://phoscon.de/apt/deconz \
    $(lsb_release -cs)-beta main' > \
    /etc/apt/sources.list.d/deconz.list"
```

4. Update APT package list

sudo apt update

5. Install deCONZ

sudo apt install deconz

After the installation deCONZ can be started via the application menu.

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-e-1 [ii]	Leave Join In Network 🚻 CRE LQI 1 Nodes	Phoscon App	WebApp
Node Info	ØX		
Type Coordinator			
Name			
Last Seen 22:59:39			
Common Info	A		
NWK	0x0000		
IEEE	0x00212effff03d49b		
Node Descriptor			
Frequency Band	2400 - 2483.5 MHz		
User Descriptor	true		
Complex Descriptor	false		
Manufacturer Code	0x1014		
Max Buffer Size	89 <b>0x0000</b>		
Max Incoming Transfer Size	61 00212effff03d49b		
Max Outgoing Transfer Size	61		Ū
MAC Capabilities			
Alternate PAN Coordinator	true		
Device Type	FFD		
Power Source	Mains		
Receiver On When Idle	true		
Security Support	false		
Server Mask			
Primary Trust Center	false		
Backup Trust Center	false		
Primary Binding Table Cache	false		
Backup Binding Table Cache	false		
Primary Discovery Cache	false 🥥		
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Node Info Cluster Info			•
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Now the first Zigbee devices can be paired via the Phoscon App. Further information can be found in the <u>Phoscon App documentation</u>.

## Docker

#### Supported host systems

- Linux x86\_64/amd64
- Linux armv7 (e.g. Raspberry Pi)

To run deCONZ in a Docker container, we recommend the Docker image **marthoc/deconz**, which is maintained by the community. This image supports on amd64 and armhf platforms.

https://hub.docker.com/r/marthoc/deconz

#### Installation

The following steps describe how to start the deCONZ container on a Linux host system.

1. Set user USB access rights

sudo gpasswd -a \$USER dialout

Note: Changes to access rights only become active after logging out and in or after a restart.

2. Create directory for persistent configuration

mkdir -p ~/.local/share/dresden-elektronik/deCONZ

#### 3. Start deCONZ Docker container

- 4. docker run -d  $\setminus$
- 5. --name=deconz \
- 6. --net=host  $\setminus$
- 7. --restart=always \
- 8. -v /etc/localtime:/etc/localtime:ro \
- 9. -v ~/.local/share/dresden-
- elektronik/deCONZ:/root/.local/share/dresden-elektronik/deCONZ \
  10. --device=/dev/ttyACM0 \
  - marthoc/deconz

With this configuration deCONZ runs in a Docker container on port 80.

Now the first Zigbee devices can be paired via the Phoscon App. Further information can be found in the <u>Phoscon App documentation</u>.

A description of all available parameters as well as the use of Docker-Compose and VNC to access the deCONZ GUI can be found in the <u>Container Documentation</u>.

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## Windows 10 installation

1. Download deCONZ software

https://www.dresden-elektronik.de/deconz/win/

2. Install USB driver

The drivers are installed automatically after connecting the ConBee II. If necessary, the drivers are downloaded from the Internet.

## Windows 7 installation

1. Download deCONZ software

https://www.dresden-elektronik.de/deconz/win/

2. Download and extract the driver ZIP file

ConBee\_II\_USB\_Driver\_V1\_00.zip

3. Manual driver installation

After plugging in the ConBee II, Windows automatically starts the search for a suitable driver.



4. Select Skip Windows Update driver software download.



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5. Open Device Manager

Enter the key combination < Win> + < Pause> and select Device Manager in the dialog that appears.



6. Right click on ConBee II and select Update driver in the context menu.

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7. Select the option Search for driver software on the computer.



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	D Treihercoftware aktualisieren - ConBee II	
$\mathbf{\overline{v}}$		
	Auf dem Computer nach Treibersoftware suchen	
	An diesem Ort nach Treibersoftware suchen:	
	D:\ConBee_II_USB_Driver_V1_00	
	Vnterordner einbeziehen	
	Aus einer Liste von Gerätetreibern auf dem Computer auswählen Diese Liste enthält installierte Treibersoftware, die mit diesem Gerät kompatibel sind und aus derselben Kategorie stammen.	
	Weiter	:hen

8. Select the directory with the extracted drivers and follow the instructions.

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手 Windows-Sicherheit			x
Möchten Sie diese Gerätesoft	ware installieren?		
Herausgeber: dresden elektronik in	onik ingenieurtechnik gmbh		
Software von "dresden elektronik gmbh" immer vertrauen	ingenieurtechnik	Installieren Nicht installie	ren
Sie sollten nur Treibersoftware vor Gerätesoftware bedenkenlos instal	vertrauenswürdigen Herausgebern liert werden kann?	installieren. <u>Wie kann festgestellt werden, we</u>	lche
🕞 🧕 Treibersoftware a	sktualisieren - ConBee II		
Treibersoftware	wird installiert		

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## Radio certification

## **United States (FCC)**

#### FCC ID: XVV-CONBEE2

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- o Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment.

Modifications not expressly approved by this company could void the user's authority to operate this equipment (FCC section 15.21).

## Innovation, Science and Economic Development (ISED) Canada

IC: 8720A-CONBEE2

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.

2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage.

2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This equipment complies with radio frequency exposure limits set forth by ISED Canada for an uncontrolled environment.

Cet équipement est conforme aux limites d'exposition aux radiofréquences définies par ISDE Canada pour un environnement non contrôlé.

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Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## **European Union (RED)**

The ConBee II is compliant for use in European Union countries.

Hereby, dresden elektronik ingenieurtechnik gmbh declares that the radio equipment type ConBee II is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: <u>https://phoscon.de/downloads/CE-ConBee\_II.pdf</u>

If the USB Dongle is incorporated into a product, the manufacturer must ensure compliance of the final product to the European harmonized EMC and low-voltage/safety standards. A Declaration of Conformity must be issued for each of these standards and kept on file as described in Annex II of the RED Directive.

The manufacturer must maintain a copy of the USB Dongle documentation and ensure the final product does not exceed the specified power ratings, antenna specifications, and/or installation requirements as specified in the user manual. If any of these specifications are exceeded in the final product, a submission must be made to a notified body for compliance testing to all required standards.

## **Ordering Information**

Name	Order No		
ConBee II	BN-600107		

