

**SOPHOS**

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Sophos Central

# Creating mesh networks

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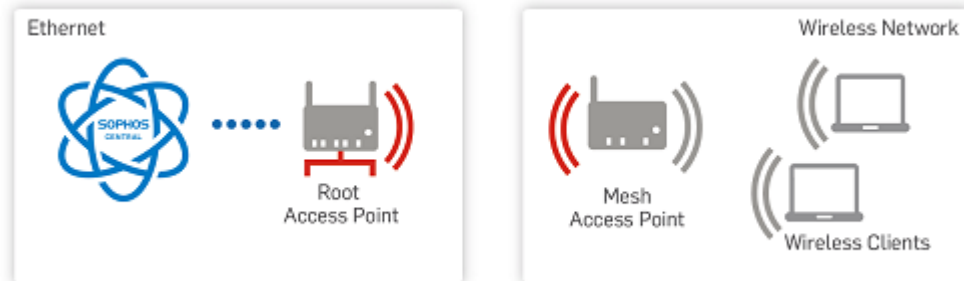
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# 1 About mesh networks

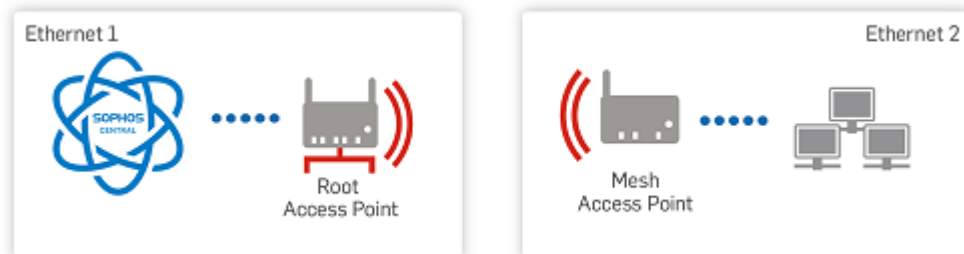
Using an AP as a mesh client with 5 GHz effectively reduces the maximum throughput by 50% per hop, because all data sent to the AP needs to be forwarded to the other AP, taking up additional airtime. Therefore we recommend to set the root AP to 5 GHz and the clients to 2.4 GHz. When an AP boots which is configured to use the mesh network, it tries to connect via cable to the service. If this does not work, it turns into a repeater AP and scans if the mesh network is visible. If yes, it will join the mesh network as a client. The access points realize by themselves if they are root, repeater (mesh) or bridge access points in the network.

## Deployment possibilities

Mesh mode enables you to have multiple access points where one is the root AP and the others are repeater APs, called mesh APs. There can be multiple root APs. Mesh APs can broadcast the SSID from the root AP to cover a larger area without cabling each AP.



A mesh network can also be used to bridge Ethernet networks without laying cables. To run a wireless bridge you have to plug your second Ethernet segment into the Ethernet interface of the mesh access point. The first Ethernet segment is the one on which the root access point connects to the service.



## Good to know

There are some things you should know about mesh networks:

- At least one access point needs a LAN connection.
- Mesh access points need to be on the same channel to make a communication possible.
- Avoid using dynamic channel selection as after a reboot the channels of the APs may differ.

- The mesh network may need up to five minutes to be available after configuration.
- You can have only one mesh SSID.
- A mesh network can be realized only with Sophos access points.
- For setting up a mesh network you need to create a new SSID.
- There is no automatic takeover of the root AP. The decision to connect to mesh happens during the boot.

## 2 Create a mesh network

Creating a mesh network will generate a WPA2-personal network with a randomly generated passphrase which will be automatically shared among all access points that are configured to broadcast the mesh SSID. The mesh ID is not visible to the administrator.

### About this task

A mesh network can implement a wireless bridge or a wireless repeater.

### Procedure

1. Connect all access points you want to have in the mesh network to the required LAN network.
2. Register them under **Wireless > Access Points > Register**.
3. Ensure that the APs are connected to an SSID.
4. Set the same channel on all APs on the 5 GHz band or set **Autochannel**.

**Note:** Do not use **Dynamic Background Channel Selection** as then the channel could change after a reboot.

5. Create a new SSID (**Wireless > SSIDs > Create**).

- a) Enter the name for the **SSID**.
- b) Select a frequency band.

**Note:** We recommend to use the 5 GHz band as the throughput is higher.

- c) Click **Next** and assign the access points by selecting them in the list.
  - d) Go to **Advanced Settings > Mesh** and select **Enable mesh mode**.
  - e) Save your settings.
6. Navigate to the access points list and wait until the status of the access points is **up to date**.
  7. Disconnect the mesh AP from the LAN network and place it at the intended location.
  8. Reboot the access points (power off and on).

### Results

The mesh network is available after a few minutes. It is not visible to end users.

### What to do next

To disable the mesh network, delete the SSID.

### Troubleshooting

If **Enable mesh mode** is not displayed:

- Create a new SSID.

If a second mesh SSID does not work:

- You can only have one SSID with mesh mode enabled.

The mesh network is not coming up:

- Wait a few minutes for it to appear.
- Check if the Spanning Tree Protocol (STP) blocks your mesh configuration.
- Test the connection by broadcasting only mesh on the root AP and a visible SSID on the repeater AP. If it is visible, mesh works.

The mesh network is not visible to end users:

- This is normal behavior. Make it visible by creating a separate SSID and adding the same access points as to the mesh network.

## 3 Mesh network not visible

Clients cannot see the network SSID.

The mesh network is established but you cannot see the mesh SSID.

The mesh network may take up to five minutes to be available after configuration.

### Procedure

1. Restart your access points.
2. Wait five minutes for the network to appear.

The Spanning Tree Protocol (STP) is blocking your mesh configuration.

### Procedure

1. Disable STP.
2. Restart your access points.
3. Wait five minutes for the network to appear.

## 4 Mesh network not usable

The mesh network is visible but clients cannot connect to the Internet.

Mesh network clients can connect to the network but not to the Internet.

### Procedure

- Check if you have at least one root access point and one mesh access point.
- Ensure that the root access point is connected to the network through a wired LAN connection.
- Check if your mesh access points are on the same channel.
- Ensure that access points that are not part of the mesh network use a different channel.



## 5 Mesh access points missing from network

Not all mesh access points are in the network.

The mesh network is set up but you face connection gaps. This could be caused by access points which are not connected to the mesh network.

### Procedure

- Ensure that all mesh access points have the configuration. In order to obtain a configuration, the access points must initially be connected by wired LAN connection. After the configuration is saved, you can disconnect the mesh access points (except for one) and restart them.
- Ensure that the LAN cable is only connected to one mesh access point.