



SITE PLANNING AND DEPLOYMENT GUIDE

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Poly Rove DECT IP Phones

GETTING HELP

For more information about installing, configuring, and administering Poly/Polycom products or services, go to the [Poly Online Support Center](#).

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Contents

Introduction	3
Site Planning	4
Site Survey	4
<i>Estimate Capacity</i>	<i>4</i>
Supported Audio Codecs.....	5
Material Effects on Signal Range	5
Interference from Other Radio Devices	6
Recommended Device Placement	6
Mapping Out Your Device Placement.....	6
Test the Radio Signal Strength	7
Deployment Examples	9
Floor Plan Deployment Examples	9
<i>Option 1: Small Retail Store with Rove B2 Base Stations.....</i>	<i>9</i>
<i>Option 2: Medium Office and Warehouse with Rove B2 Base Stations and Rove R8 Repeaters.....</i>	<i>10</i>
<i>Option 3: Large Animal Hospital with Rove B4 Base Stations and Rove R8 Repeaters</i>	<i>12</i>
Deployment Examples for Daisy-Chaining Repeaters to Base Stations.....	14
<i>Option 1: One Base Station + Three Repeaters.....</i>	<i>14</i>
<i>Option 2: Two Base Stations + Nine Rove R8 Repeaters.....</i>	<i>14</i>
<i>Option 3: Three Rove B4 Base Station + 9 Rove R8 Repeaters.....</i>	<i>15</i>
Installation	16
Desktop Placement.....	16
Wall and Ceiling Mounting	16
Troubleshooting.....	17

Introduction

The target audience for this document include network administrators and site installers. This guide covers site planning, site surveying, and installing Poly Rove DECT solutions.

The Rove DECT IP system supports up to 254 base stations on the same network and can support up to 1000 registered handsets, depending on the base station and number of connected repeaters. The following table includes all of the DECT IP phone components available for the Rove DECT solution.

Poly Rove DECT IP Phone Components

Product Name	Product Description	Part Number
Rove B2	Poly Rove B2 single/dual-cell base station	2200-86820-001
Rove B4	Poly Rove B4 multi-cell base station	2200-86830-001
Rove R8	Repeater	2200-86840-001
Rove 30	Handset	2200-86930-001
Rove 40	Handset (+ Bluetooth/Emergency Button)	2200-86810-001
Rove 30/40 Multicharger	Multicharger	2200-86860-001

Site Planning

The success of your Poly Rove DECT IP phone deployment depends on where you set up your system components.

Each Poly Rove base station and repeater has a signal range of 40 meters indoors and 250 meters outdoors. However, equipment, furniture, or walls and doors can interfere with the strength of the signal. You need to identify any material within your environment that can diminish signal strength and determine how many devices you need in a particular area to maintain a strong signal.

Site Survey

Before you set up your Poly Rove DECT IP phones, it's important to do a survey of your site environment to determine the best placement of your hardware for optimal signal coverage.

Keep the following in mind as you survey your location:

- Estimate the number of users who will actively use the DECT IP phone and determine the number of base stations and repeaters you will need to maintain sufficient radio coverage for all users.
- Estimate the number of base stations you will need to cover multiple floors and how you want to sync coverage between floors.
- Note any areas in the building where signal strength is the weakest and determine if the signal strength is affected by the building materials. See [Material Effects on Signal Range](#) for a list of materials that have the greatest effect on signal strength.
- Identify high-traffic areas and hours of highest activity.
- Check for any neighboring wireless networks or DECT devices that may be operating on the same frequency as they may interfere with calls.

Poly offers the following professional services to assist you with deploying your DECT devices:

- DECT Deployment Service
- DECT Site Assessment Service

Estimate Capacity

Make note of the following capacity items as you plan your deployment:

- Total number of handsets you want to deploy _____
- How many concurrent lines will be in use _____
- Determine total coverage Area. Reference floor plan examples _____
- Determine audio codec being used (narrowband or wideband) _____

Note: Wideband will cut concurrent calls by 50%.

Base Station Capacity

Product Name	Simultaneous Handset Connection	Simultaneous SIP Registrations	Concurrent Calls Narrow Band	Concurrent Calls Wide Band	Concurrent Opus Calls	Paired Base Station	Range	R8 Repeater Compatible
Rove B2	20	20	10	5	2	Up to 2	40m Indoor/250m Outdoor (US) 50m Indoor/300m Outdoor (EU)	Yes

Rove B4	1000	30	8	4	4	Up to 254	40m Indoor\250m Outdoor (US) 50m Indoor/300m Outdoor (EU)	Yes
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Note: Poly Rove B2 and Rove B4 can automatically switch to a lower band audio codec if available. Capacity cannot support additional wide band connections.

Supported Audio Codecs

- The Rove 30 and Rove 40 handsets support Opus or G722 codecs for wideband and the G726 codec for narrowband.
- The Rove B2 and Rove B4 base stations support Opus, G722, G711U, G711A, and G726 codecs.
- The DECT protocol supports only two codecs at a time. You can choose the two supported codecs the protocol uses. Poly recommends you choose one wideband and one narrowband codec.
- The base station performs the required transcoding based on the negotiated coded for each call.
- The wideband codec occupies two channels, and the narrowband codec occupies one channel.
- If you expect more simultaneous calls, use the narrowband codec to increase the available number of channels. If you configure the wideband codec, you may need to add more base stations to increase the channel capacity for a given DECT coverage area.
- If you decide to use the Opus codec, Opus is enabled on Rove B2 by default. With Rove B4, you must enable and configure the Opus codec in the system web interface.

Material Effects on Signal Range

The following table shows the usual types of building materials and the affect signal quality.

Material Effects on Radio Signal

Material	Examples	Effect
Air	Outdoors, open space	None
Glass	Un-tinted windows, partitions, walls	Low
Plastic	Partitions	Low
Wood	Doors, floors, partitions	Low
Brick	Walls	Medium
Living creatures	Plants, large crowds	Medium
Tinted glass	Windows, partitions	Medium
Ceramic	Tiles	High
Concrete	Walls, floors, pillars	High
Metal	Cabinets, reinforced concrete	Very High

Interference from Other Radio Devices

When deciding where to place your base station or repeater, ensure it is 2 meters (6 feet) from other radio frequency devices like a WIFI access point.

Recommended Device Placement

Poly Rove base stations and repeaters have a signal range of 50 meters indoors and 300 meters outdoors. However, certain building materials can drastically affect the signal strength and coverage for these devices.

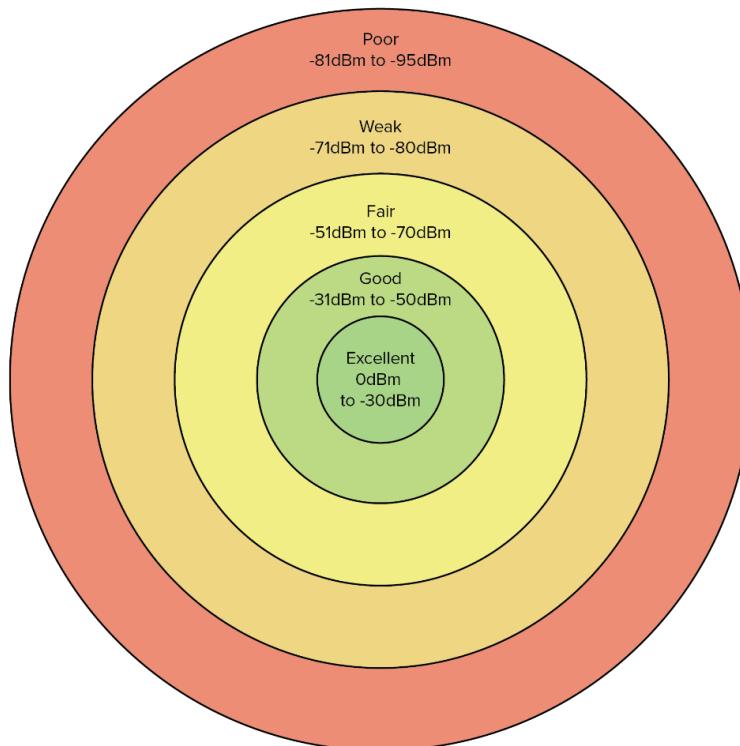
Poly recommends you keep the following in mind when deciding where to set up your DECT IP phone devices:

- Place base stations and repeaters in open areas away from metal, concrete, or ceramic materials.
- Avoid placing devices in cabinets or beneath furniture.
- Place base stations close enough so that the signal coverage overlaps, ensuring there are no signal drops. Ideally, devices should be between 25 to 45 meters away from each other to avoid signal interference.
- Add additional devices to high-traffic areas to compensate for signal interference. Poly Rove B4 multi-cell base stations are ideal for high-density areas.

Mapping Out Your Device Placement

Before you setup your DECT IP Phone, identify the areas within your space that have the strongest and weakest signal coverage. Below is chart that depicts how signal strength RSSI values correlate to QoS.

Signal Quality Levels for Rove DECT Base Stations and Repeaters



- **Excellent** – Sends clear audio with no package errors.
- **Good** – Sends clear audio with unnoticeable package errors.

- **Fair** – Sends clear audio with minor interruptions and occasional package errors.
- **Weak** – Sends audio with clicks, mutes, or distorted audio.
- **Poor** – Sends unintelligible audio or no audio at all.

Test the Radio Signal Strength

Using unregistered Poly Rove wireless handsets, you can test the radio signal strength in different areas of your building.


The Poly Rove wireless handsets can connect with any nearby Poly Rove base stations to get general information, such as IP address and signal strength, before the handsets are registered to a base station.

The signal strength will vary depending on if the Poly rove DECT IP phone is set up outside or the materials in a building. Here is a general reference of possible signal strengths:

Poly Rove DECT IP Phone Components

Product Name	Frame Quality	Signal Quality
0dbn to -30dBm	100%	Excellent
-31dBm to -60dBm	100%	Good
-61dBm to -70dBm	100%	Fair
-71dBm to -80dBm	100%	Weak
-81dBm to -95dBm	100%	Poor
-95dBm and lower	100%	Disconnected

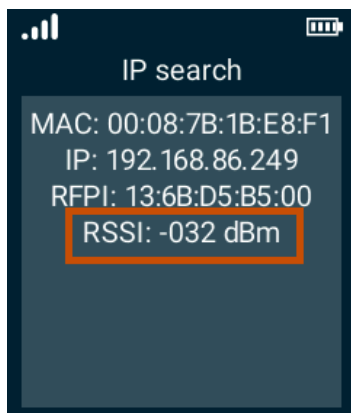
Procedure

1. Place a few Poly Rove base stations and wireless handsets in the areas where you are planning to set them up and power on the devices.
2. Power on the devices and connect the LAN cable to the base stations.
3. On a wireless handset, select **Menu**  , then press * 47 * on the keypad.

The IP search screen displays with a list of all the nearby base stations.

4. Select a base station from the list.

The signal strength displays next to RSSI, as shown below.



As you walk around with the wireless handset, the RSSI will automatically update onscreen with the signal strength for that area.

Deployment Examples

Poly Rove DECT IP phones provide a wide arrange of deployment options, which depend on the amount of coverage needed and the building materials. Review the following sections to get an idea of the deployment possibilities for your environment.

Floor Plan Deployment Examples

The following deployment examples can help you determine how many devices you will need for optimal phone performance in your space.

Option 1: Small Retail Store with Rove B2 Base Stations

In this example, the store owner wants to put a Rove B2 base station behind the cash register. This gives the store decent coverage, but due to the cement construction of the exterior walls, the storage area has poor coverage. Placing an additional Rove B2 base station on the other end of the counter near the storage area provides good coverage in all areas of the store.

Recommended Deployment Option for Small Retail Stores

Handsets	Simultaneous Lines in Use	Audio Codec	Optimal Signal Strength	Coverage Area
3	2	Wideband	-30dBm to -60 dBm	600 sq ft

Floor plan example with two base stations



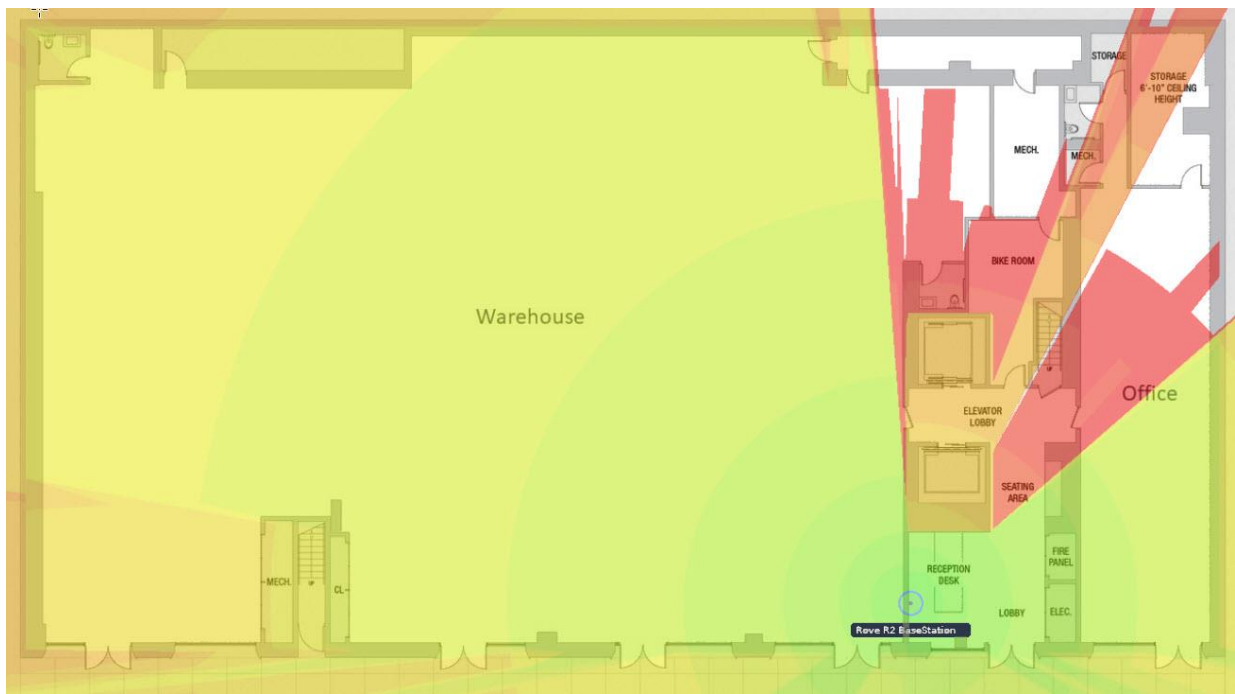
Option 2: Medium Office and Warehouse with Rove B2 Base Stations and Rove R8 Repeaters

Here is a typical split office/warehouse layout for a customer with employees who need to roam between the warehouse and the office. Deploying a single base station near the reception area shows there is a lack of coverage for parts of the office and warehouse. Adding ceiling repeaters in the office and warehouse provides the desired coverage for both the office and warehouse.

Recommended Deployment Option for Medium Office and Warehouse

Handsets	Simultaneous Lines in Use	Audio Codec	Optimal Signal Strength	Coverage Area
25	8	Wideband	-30dBm to -60dBm	9500 sq ft

Floor plan example with one Rove B2 base station



Floor plan example with one Rove B2 base station and one paired Rove R8 repeater



Floor plan example with one Rove B2 base station and two paired R8 repeaters



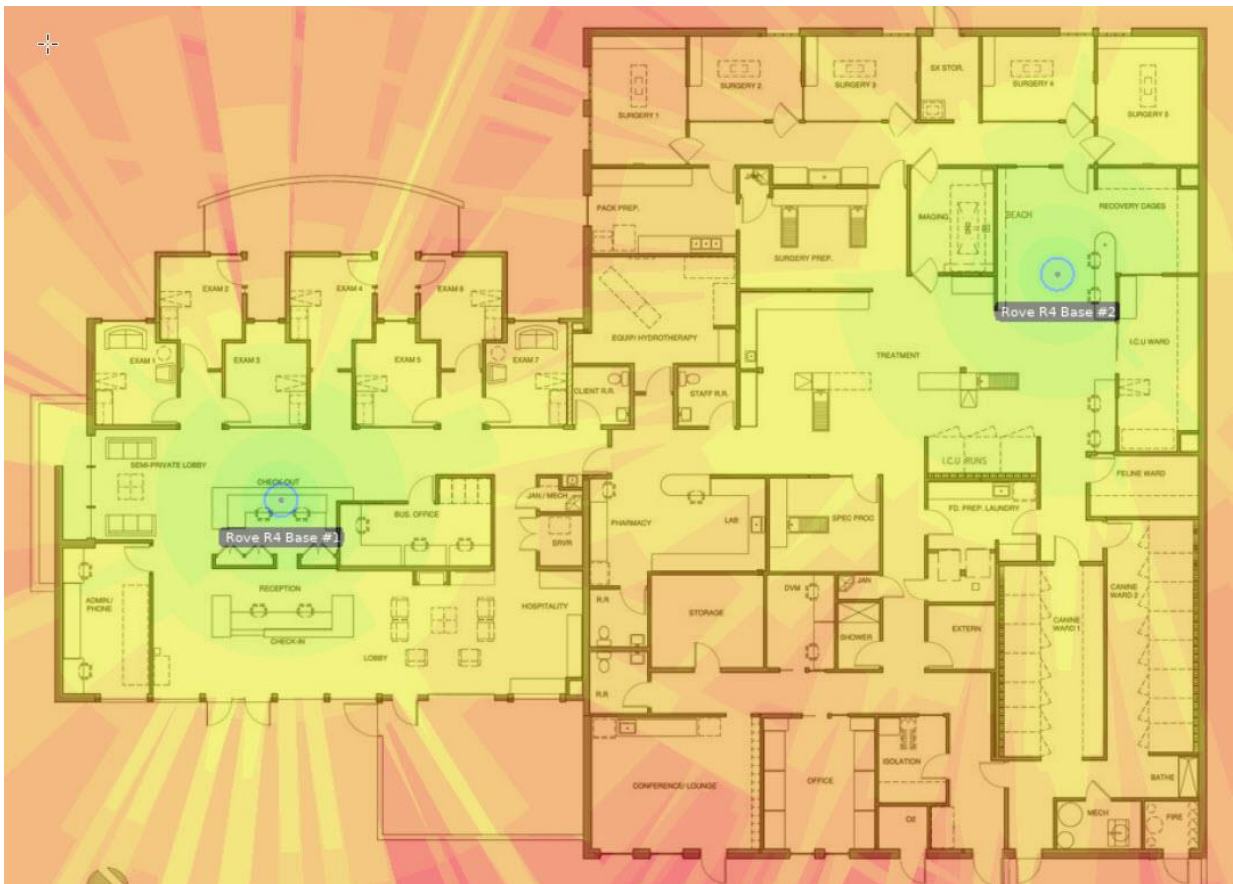
Option 3: Large Animal Hospital with Rove B4 Base Stations and Rove R8 Repeaters

The below is an example of a busy animal hospital that requires multiple base stations to accommodate 50 wireless handsets and 20 simultaneous in-use lines. Although two Rove B4 base stations support for 50 wireless handsets and 20 concurrent lines, it doesn't meet the coverage requirements the hospital needs. Adding four Rove R8 repeaters throughout the facility provides the coverage requirement the hospital needs.

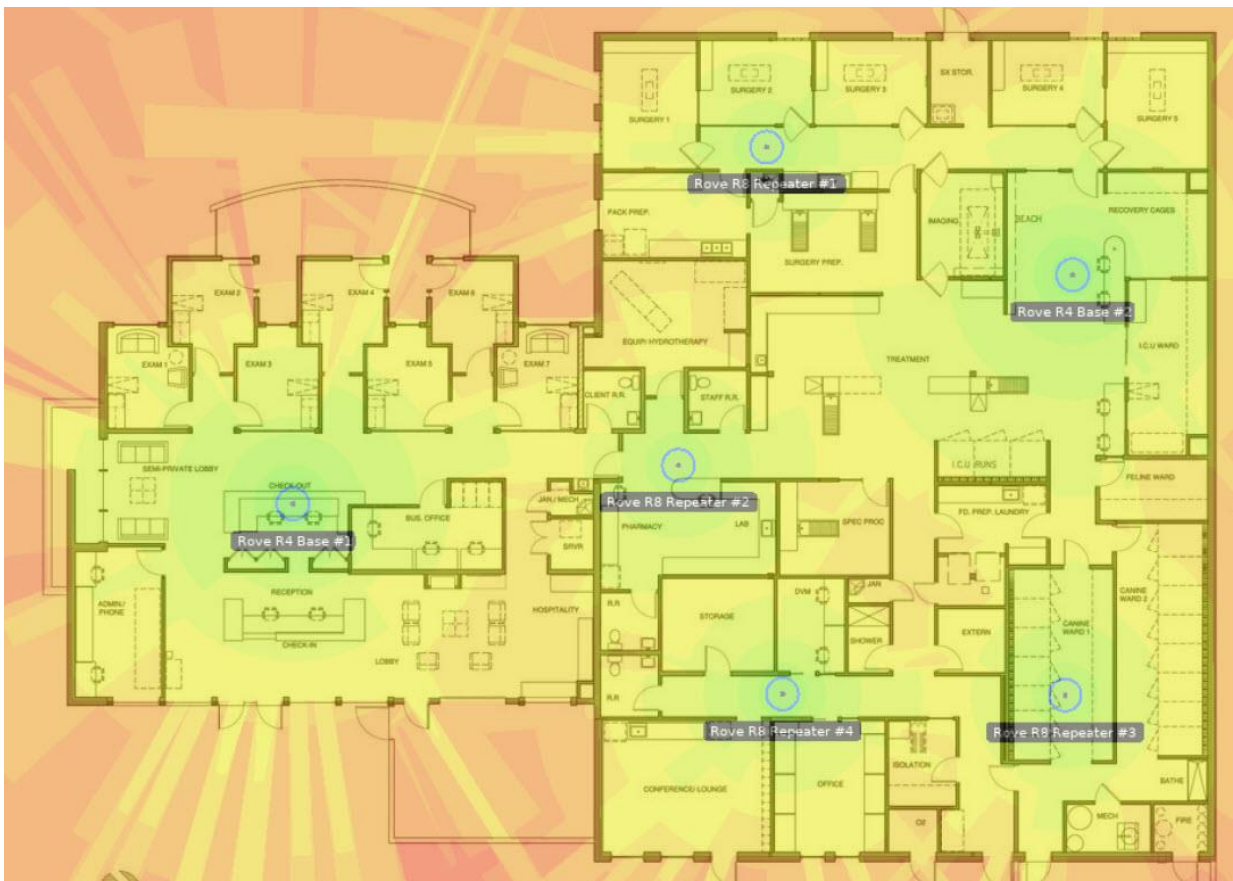
Recommended Deployment Option for Large Animal Hospital

Handsets	Simultaneous Lines in Use	Audio Codec	Optimal Signal Strength	Coverage Area
50	20	Wideband	-30dBm to -60 dBm	11,000 sq ft

Floor plan example with two Rove B4 base stations



Floor plan example with two Rove B4 base stations and four Rove R8 repeaters



Deployment Examples for Daisy-Chaining Repeaters to Base Stations

Although you can only daisy-chain up to three repeaters, there are several options to pair base stations and repeaters to get maximum signal coverage. Adding base stations will increase both signal range and call capacity. However, if additional call capacity is not needed, consider using a repeater to extend radio coverage while minimizing the cost of having to deploy Rove B4 base stations.

Considerations for using a base station or a repeater:

- Daisy chain limitations: up to three daisy-chained Rove R8 repeaters.
- Pairing limitations: up to two Rove B2 base stations; up to 254 Rove B4 base stations.
- Cost: Rove R8 repeaters and Rove B2 base stations are lower cost options than the Rove B4 base stations.

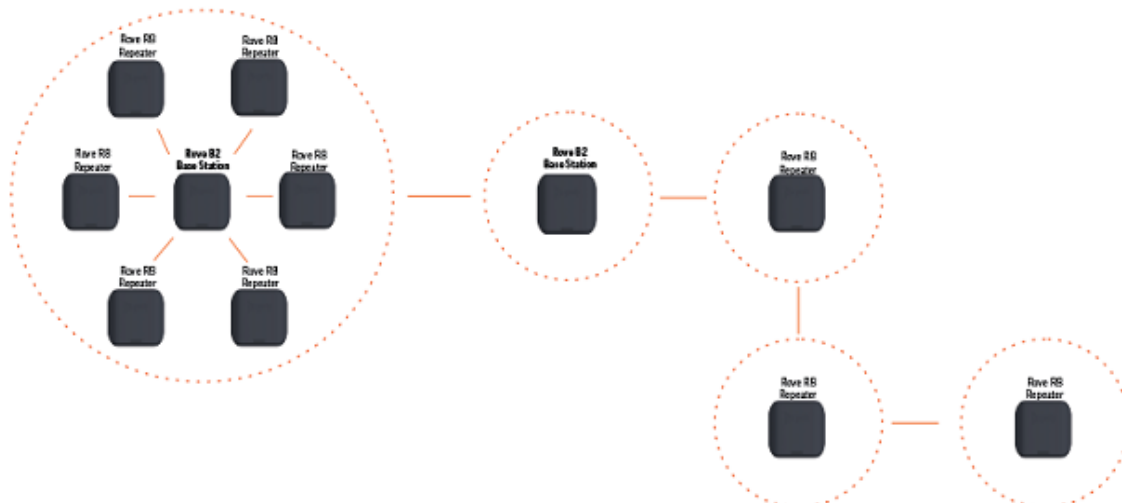
Option 1: One Base Station + Three Repeaters

For simplified deployments, you can pair a Rove B2 or Rove B4 base station with a repeater and daisy-chain two repeaters. This scenario provides signal coverage for up to 200 m (650 ft) indoors and 1200 m (3900 ft) outdoors and may be ideal for extending signals in hallways or small rooms.



Option 2: Two Base Stations + Nine Rove R8 Repeaters

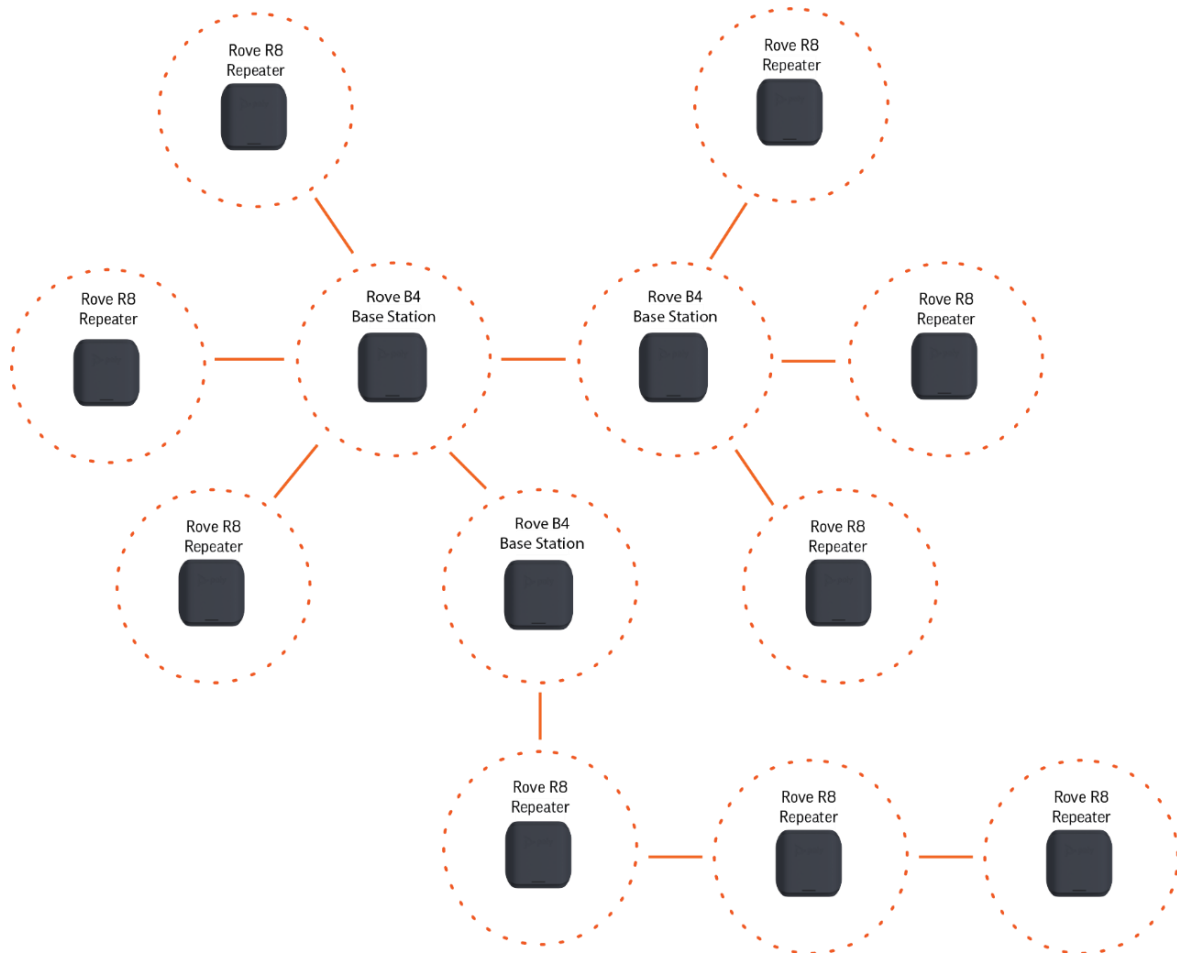
For medium-sized deployments, you can pair two Rove B2 or Rove B4 base stations and have one base station with six paired repeaters and another base station with three daisy-chained repeaters. This scenario provides signal coverage for up to 550 m (1800 ft) indoors and 3300 m (10,800 ft) outdoors and may be ideal for open-space offices.



Option 3: Three Rove B4 Base Station + 9 Rove R8 Repeaters

Repeaters

For large or complex deployments, you can pair three or more Rove B4 base stations and have a mixture of paired and daisy-chained repeaters, as long as there are only three paired repeaters or three daisy-chained repeaters per base station.



Installation

Once you have the placement of your Poly Rove base stations and repeaters planned out, ensure that you have adequate power and ethernet (PoE) at each base station and repeater location. You can place a Rove B2 or Rove B4 base station and Rove R8 repeaters on a desk or mounted onto a wall or ceiling.

Desktop Placement

Setting up your Poly Rove devices on a desktop is ideal if you don't want to mount the base stations or repeaters. You should also consider desktop placement if you want the devices to be easily accessible to personnel. The Poly Rove base stations and repeaters all include a base stand in the packaging. For instructions on connecting the base stand to the device, refer to the Poly Rove Base Station or Poly Rove R8 Repeater setup sheets on the [Poly Online Support Center](#).

For Rove B2 and Rove B4 base stations, ensure you have PoE or ethernet and power outlets at the desktop location. For Rove R8 repeaters, ensure you have power outlets at the desktop location. Once you have the device powered on and connected to the network, re-test the radio signal strength using a Poly Rove wireless handset ([Test the Radio Signal Strength](#)).

Wall and Ceiling Mounting

Mounting your Poly Rove base station or repeater to a wall or ceiling is ideal for keeping the devices in fixed positions, out of sight, and secure from unwanted tampering. For the best signal coverage, mount the base stations and repeaters as high as possible with unobstructed views. You can mount the base stations and repeaters vertically on the wall or horizontally on the ceiling. Note that if you choose to mount the devices onto a ceiling panel, then the ceiling materials could interfere with the signal range, as described in the section [Material Effects on Signal Range](#).

The Poly Rove base stations and repeaters all include the mounting stand and screws in the packaging. For instructions on mounting the devices, refer to the Poly Rove Base Station or Poly Rove R8 Repeater setup sheets on the [Poly Online Support Center](#).

For Rove B2 and Rove B4 base stations, ensure you have PoE or ethernet and power outlets near the mounting location. For Rove R8 repeaters, ensure you have power outlets at near the mounting location. Once you have the device powered on and connected to the network, re-test the radio signal strength using a Poly Rove wireless handset ([Test the Radio Signal Strength](#)).

Troubleshooting

For troubleshooting help, refer to the Poly Rove DECT IP Phone Administrator Guide on the [Poly Documentation Library](#).