



## Positioning Your Wireless Router with Oberon's 1082-00 Network Cabinet or Wireless Router Box



Oberon's Wireless Router Box recessed in wall



Oberon's Model 1082-00 Network Cabinet

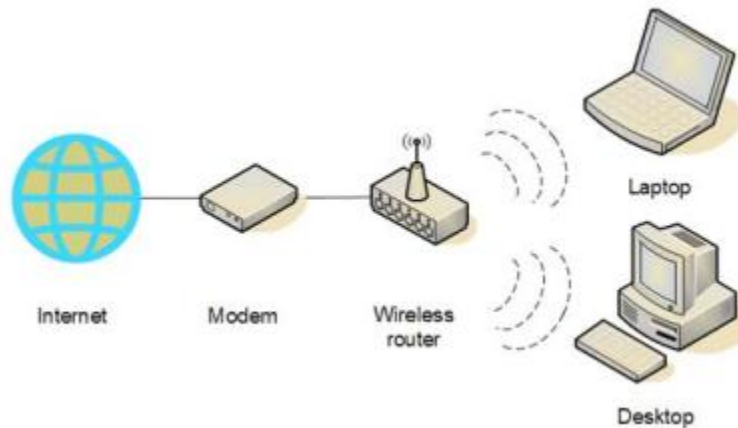
A wireless router, connected to a broadband modem (either DSL or Cable) can provide home network connectivity though out your home. Some ISPs offer a combination wireless router and modem, called a modem router. Other components connected to the router, such as Network Attached Storage (NAS) can be configured to provide automated back-up. Ethernet switches, video servers, and other networking components can be attached to the router to provide a highly functional home/office network. These components and associated cabling should be organized and fastened in place to avoid accidental disconnects, excessive data cable bending (which can restrict data throughput), poor location of the wireless router antenna, or poor ventilation to the electronics. Oberon's 1082-00 Network Cabinet or Wireless Router Box provide an ideal means to organize, stow, and protect your networking components.

Your wireless router operates in either of the 2.4 GHz band, the 5 GHz band, or both. Typically home wireless routers will cover an area of 2,000- 3,000 sq. ft., including adjacent floors of a multilevel home. In more

open areas, the coverage may be much greater. In buildings with older construction (a lot of block and plaster) coverage may be much less. Check the transmit power specification of the wireless router. All things being equal, the router with greater transmit power should provide greater coverage area, but not necessarily better throughput.



## SELECT WIRELESS ROUTER/OBERON 1082-00 NETWORK CABINET or WIRELESS ROUTER BOX LOCATION



By organizing and securing your networking components in Oberon's 1082-00 Network Cabinet or Wireless Router Box, you can avoid network problems associated with cable disconnects, accidental power loss, wireless router blockage, damage to cables, and so on. The Network Cabinet "locks down" your network physical configuration.

Oberon's model 1082-00 Network Cabinet is 22" x 22" x 4" deep and is large enough to organize and stow larger wireless routers, broadband modems, modem routers, network attached storage (NAS), surge suppressors, power strips, small switches and hubs, media servers, and other networking components. In many cases, the cabinet is located close to the location where your broadband Internet connection (DSL or cable modem) comes into the house. Locating the network cabinet close to the broadband Internet connection shortens the cable length, and therefore makes cabling a little easier. Of course, AC line power is required for the enclosed components, so proximity to a power outlet is also desirable.

Oberon's Wireless Router box is 9" x 14" x 3.5" deep and is designed to accommodate smaller wireless routers and broadband modems. The Router Box can be either recessed mounted in the wall by attaching the box to wall studs, or surface mounted on the wall by using appropriate wall anchors.

From a wireless coverage standpoint, it is preferable to have the Network Cabinet or Wireless Router Box located centrally within your house. If you have multiple cable (for cable modem) or phone line (for DSL) outlets, choose the outlet which is most centrally located in your home. If the only broadband Internet connection is in a utility room in the basement of your home, then coverage may not be adequate in distant upper floors, due to attenuation of the signal as it passes through floors and walls. You can validate the router location by temporarily setting up the router (without the cabinet), and (wirelessly) connecting your clients/PCs in the locations they will be used (such as your home office). If you have a notebook, tablet, or smart phone, test the wireless connection in the locations the mobile device will be used. Since the plastic door of the network cabinet and wireless router box is virtually transparent to wireless signals, there will be little difference in coverage once the wireless router is installed in the cabinet.



For a given wireless router, a stronger signal will usually provide for better throughput. If there is a location in your home that is predominantly used or requires best throughput, then locate the router close to that location. The best performance will be achieved if the client device is actually line of sight to the wireless router. This will also permit you to easily “hardwire” a data cable to the wireless router from your PC for router configuration and troubleshooting.

Avoid mounting the Network Cabinet/Wireless Router Box close to other wireless devices such as Bluetooth, 2.4/5 GHz cordless phones, and microwave ovens. Avoid mounting the wireless router/cabinet *behind* objects which could attenuate or reflect the wireless signal, such as desks, bookshelves, furniture, etc. Mount the wireless router/cabinet high enough off the floor so that it is not easily blocked by boxes, trash cans, and other objects stacked on the floor.

While performing the testing, check for interference from other Wi-Fi networks. Most client devices have a utility which allows you to scan for Wi-Fi networks, and tell you what access points and routers are on what channels. If you live in a multi-dwelling unit, in a neighborhood with many wireless users, or in an area with a fixed broad band Wi-Fi subscription service, you may notice that there are many Wi-Fi access points or routers contending for limited spectrum. Select the channel with the least congestion. Channel 6 in the 2.4 GHz band is a default channel for most equipment makers and should be avoided. The 5 GHz bands offer a lot more channels to choose from than the 2.4 GHz band. Your wireless router should let you configure the operational channel. Client devices, as they authenticate and associate with the router, will tune to the proper channel automatically.

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## INSTALL WIRELESS ROUTER IN NETWORK CABINET

Wireless routers may have detachable dipole antennas, or antennas embedded within the body of the router. If the router has connectors with detachable dipole antennas, the dipole antennas are generally oriented vertically, to generate a vertically polarized omni-directional pattern. If the router does not have antenna connectors, such that the antennas are embedded within the body of the router, then the router should be mounted in the orientation according to the manufacturer's directions. The embedded antennas are designed to generate an omni-directional pattern also. The external antennas, or body of the router with embedded antennas, should not be touching objects or surfaces, as this may alter the preferred antenna pattern.

Desktop/standup wireless routers can stand on one of the adjustable shelves included with the Network Cabinet. Wall mounted or “reclined” routers can be fastened to the back box using the included hook and loop straps. Interconnect data and power cables and cords as required. Manage and tie cables such that they do not touch the antennas, or the body of the wireless router with embedded antennas, which can impact the antenna pattern. Using the hook and loop straps, secure the router so that it does not move around in the cabinet when the door is shut.



*Wall mount or "reclined" router strapped to back box, rack-mounted switch and patch panel, cable modem, surge protector or strip*



*Desktop "stand-up" wireless router (note the vertical dipole antennas), switch, DSL modem, and surge protector / power strip*



*Wireless Router Box, recessed wall mount*



*Wireless Router Box, Surface wall mount*



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## IEEE 802.11n WIRELESS ROUTERS

802.11n or "N" routers use a method called MIMO (Multiple Input/Multiple Output) antennas to achieve higher data throughput and better coverage. These wireless routers have more antennas than the original style routers. Again, the antennas may be external or embedded in the body of the router. These routers may operate in either the 2.4 GHz band, 5 GHz band, or both. As with the conventional routers, the antennas (whether they are external or embedded) should not come in direct contact with other surfaces, as this has the potential to disrupt the antenna performance. Oberon's 1082-00 network cabinet is large enough to accommodate any manufacturer's 802.11n MIMO wireless router. When selecting and cabling for the 802.11n router, remember that these devices are capable of data rates in excess of 100 Mb/s, so verify that the router has a Gigabit data port.

