

Tech Bulletin 2010-004

Minimum Requirements Guide Description

Ipitomy is often asked; “what are the minimum requirements of the network”? So here it is. Please use this **guide** for what it is, a generalized guide of the needed network environment – NOT the guidelines for the specific network needed for any specific installation. This guide can help to feel better prepared to implement a network-based system. It is not a guide to establish start-to-finish configuration details.

1. **ISP:** Internet Service Provider—whoever it is, make sure the bandwidth is capable of carrying the data traffic required PLUS 160KBS for each SIP trunk connection. This is usually only an issue of importance if the user has DSL or other sub-megabit/s connectivity. (160kbs is 0.160mbs)
 - For Remote Access, Remote Extensions, and Branch PBX’s it’s best to have a Static IP Address from the ISP for the site.
2. **Router:** this will vary depending on what the site has in place and how the ISP is terminating their service... often they provide the router. The following settings apply to the router:
 - DHCP—(Dynamic Host Configuration Protocol) This **automatically** assigns IP Addresses to devices linked to the Router. If the router doesn’t support DHCP replace it with one that does.
 - SIP features in the router—TURN THEM OFF!
 - ALG features in the router—TURN THEM OFF
 - NAT—(Network Address Translation) This is a means for the router to add data to packets in transit. The ability to define five NAT ports is desired.

Router-Ports: a configuration option on a NAT-enabled router that allows a host machine to dynamically and automatically forward a specific port . These are instructions for what to do with traffic that enters the Router—Ports are a means of further directing traffic allowing connectivity when it typically is otherwise not allowed. Ports that should be “OPEN” (defined for routing to the PBX) are:

- Port 5060—SIP (Session Initiation Protocol) connections... if you intend to use SIP Trunks, access the PBX remotely, or Remote Extensions, Port 5060 must be OPENed.
 - Ports 10000-20000—Remote Extension call traffic, randomly selected and encrypted for security these ports *carry* the voice traffic.
 - Port 4569—SIP control data for Branch Offices
3. **Switch:** This is often part of the router—but it doesn’t have to be. In fact if you’re unsure, make the predetermined decision to install the switch regardless of what’s already on site. It should have:
 - Managed—This speaks of Layers in the topology of data routing... to keep this simple, it means that the switch is capable of “managing” traffic on the network to optimize throughput... this data here, that date there sort of thing.
 - PoE/POE—(Power Over Ethernet) unless you like lots of wires going from the wall to the telephone—make sure it has POE; the ability to power the telephone over the same wire as the Ethernet data.
 4. **UPS (Uninterruptable Power Supply)** means just that; as long as the battery is charged there is power at the outlets. This is the default power backup of choice. We are NOT recommending any particular unit since there are lots to choose from. Look for those that provide power at the outlets from the battery at all times—these provide the most consistent output when power-line fluctuations occur. Those at the right are examples only. You may need one for each component: Router, Switch, PBX...
 5. **Other:**
 - There can be no IP Address conflicts (two or more devices with the same IP Address).
 - Assign a fixed IP Address for the PBX (don’t use DHCP on the WAN side of the PBX).
 - Geek—geeks are always helpful. If you don’t have one try one.

