

Local Area Network Requirements for implementation of FreedomPipe Service with Customer Provided Networking Equipment

If Customer elects to provide utilize their existing Local Area Networking equipment, customers must certify that their local area data networking infrastructure meets or surpasses a set of guidelines prior to service installation. Customer is responsible for providing at their own expense Local Area Network equipment that will meet the requirements for installation of the service. Digitel can provide these services at an additional charge. These include:

- 10/100 managed Ethernet switches (no hubs) capable of operating in full duplex mode. All ports used to service FreedomPipe phones must be operating in full duplex at 100 Mbps.
- QoS (Quality of Service) functionality on the LAN is required. Minimum required protocol is 802.1p (Layer 2 prioritization). Recommended protocol is DiffServ/TOS (Layer 3 service differentiation).
- If customer elects to utilize the 10/100 data port on the Cisco IP telephones for data connectivity, VLAN trunking is required. 802.1q
- If the customer's firewall performs stateful packet inspection (SPI) and understands the SCCP protocol, then SPI will need to be disabled for the SCCP (Skinny) protocol. Some NAT implementations, such as Cisco's, also perform payload IP address translation for protocols they understand. Payload translation for SCCP needs to be disabled. On Cisco routers, the following command will disable this:

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'no ip nat service skinny tcp port 2000'
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- FreedomPipe uses UDP (User Datagram Protocol) requests to establish two-way communications with IP Phones on customer networks. Firewalls and NAT implementations may block this request and make this communication impossible. UDP session timers must be set to +240 seconds to assure this session may take place. Our phones and PCs running Console Assistant software must have clear and open access to UDP Port 69 for TFTP service.
- To make use of DHCP for your Cisco phones with FreedomPipe it is often convenient to make use of DHCP Option 66 to assign the TFTP server automatically to 4.78.209.5. With many vendors this is often referred to as a Call Agent in in VoIP specific settings areas within the configuration GUI on most firewall and/or NAT enabled LAN hardware that perform DHCP.
- To make use of SIP and MGCP ATA's there are important requirements must be met for full functionality. Any Firewall and/or NAT enabled LAN hardware used should be enable for consistent NAT as well as "UDP Connection Timeout" set to +240 seconds.