

# 4300T Series Converged Network Appliance

## Quick Start Guide



**This guide helps you to install and connect to the 4300T Series converged network appliance. You may then use the online help files to configure the 4300T to meet the specific needs of your environment.**

**This guide also provides an example of a typical 4300T Series deployment that can be used as a guideline for your installation.**

## **Before you begin you must have:**

- A computer with a web browser (Microsoft Internet Explorer or Netscape Navigator)
- At least 1 ethernet cable
- The following information supplied by your VoIP service provider
  - IP address of the WAN interface
  - T1 frame format
  - Layer 2 protocol (PPP, Frame Relay/DLCIs or HDLC)
  - IP address of the Softswitch

## Step 1 – connect all of the cables

- Connect an ethernet cable between LAN port 4 on the 4300T and your computer's ethernet port.
- Connect a cable between the T1/E1 WAN port on the 4300T and the T1 demarcation unit provided by your service provider. Alternatively, connect an ethernet cable between the WAN ethernet port on the 4300T and a WAN router or broadband modem.

**CAUTION:** To reduce the risk of fire, use only 26 AWG or larger wire (e.g. 24, 22, 20, etc.) to connect the T1 port on your unit to an RJ-45 jack.

- Plug one end of the power adapter into an AC outlet and the other end into the power receptacle on the 4300T.

## Step 2 – connect to your 4300T

The 4300T is shipped with a pre-configured IP address on its LAN port of 192.168.1.1.

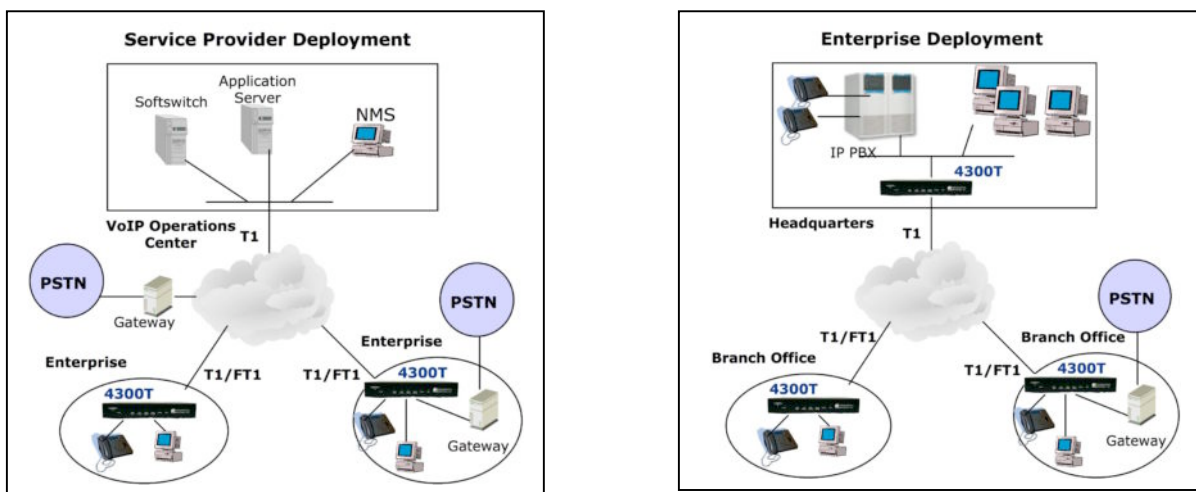
To connect to the 4300T, do the following:

- Configure your PC's ethernet adapter to use an IP address of 192.168.1.2 and a subnet mask of 255.255.255.0. (If using a LAN switch then the switch must support 100Mbps full duplex).
- Launch a web browser on the PC and enter the URL 192.168.1.1.
- Press Return. The initial 4300T main configuration menu appears.
- Select the Network link - enter the username "root" and the password "default."
- Continue to configure the LAN and WAN ports and the rest of the appliance using the information in step 3 as a guideline.

## Step 3 – plan your configuration

### Suggested Deployment

A typical 4300T installation uses the integrated CSU/DSU in the 4300T to terminate a T1 WAN connection. The LAN ports of the 4300T are then used for connection to PCs, servers, IP phones or other layer 2 ethernet switches. The diagrams below show typical deployments for both service provider and enterprise applications.



In these examples a single public IP address on the WAN is used to proxy for all of the IP phones and to route to multiple PC's installed on the LAN.

The 4300T provides the following services:

- WAN/LAN IP routing
- NAT/PAT translation for IP phones and PC's. This allows a single public IP address to be used on the WAN link to represent all of the private IP addresses assigned to the LAN IP phones and PC's.
- A "VoIP" aware firewall. A full layer 7 gateway for voice traffic **and** a stateful packet inspection firewall for data traffic.
- Traffic shaping and priority queuing to guarantee the quality of VoIP traffic. These mechanisms protect voice and data traffic from contending for the same network resources to guarantee low latency and the highest call quality possible for VoIP traffic. At the same time they ensure the best utilization of WAN bandwidth by enabling data traffic to burst up to full line rate in the absence of voice calls. Precedence is given to traffic for the range of addresses reserved for the IP phones.
- Call Admission Control (CAC). CAC uses a deterministic algorithm to decide when there are insufficient network resources available to adequately support new calls and then return the equivalent of a "fast busy" to new call requests.

- DHCP server and FTP/TFTP relay. These features are used to simplify and expedite the IP configuration of phones and PC's. This also includes VoIP signaling gateway information (MGCP).
- Passive call quality monitoring and test tools.
- VoIP survivability is an orderable software option that provides local call switching for SIP clients during a WAN link failure or lost of connectivity to a centralized softswitch or IP PBX. This functionality also includes the ability to make inbound and outbound calls to a local ethernet connected PSTN gateway (SIP).

4300T configuration:

- Firewall enabled
- VoIP ALG enabled
- NAT enabled
- Routing enabled
- Traffic shaping enabled
- DHCP server enabled
- VoIP survivability

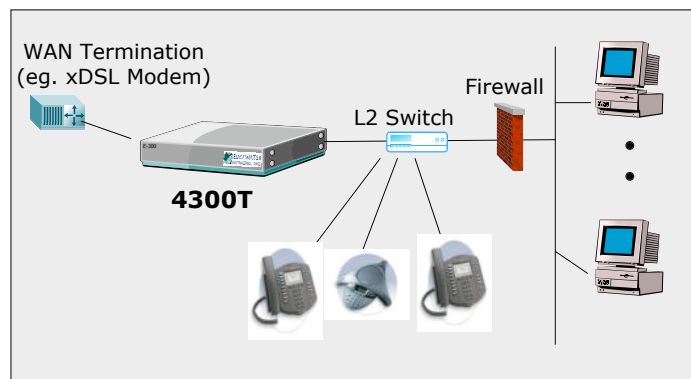
Benefits

- Security of private IP addresses and voice aware firewall
- Traffic shaping prioritizing voice over data traffic.
- Recover bandwidth for data when not used for voice
- Simplified management and administration
- Simplified adds, moves and changes
- Scalability – the single public IP address can continue to be used for new subscribers to the service.
- Increased availability of voice services through VoIP survivability.

## Installing The 4300T With Existing Infrastructure

In enterprise networks with existing routers and firewalls, the 4300T can be configured as a VoIP application layer gateway only, which maintains the functions and services of the existing network appliances. It allows all of the existing network devices to continue to handle data traffic, while the 4300T handles voice and video traffic as well as provide VoIP survivability.

In the deployment below, the 4300T is connected to a WAN router or broadband modem using its ethernet WAN port. The enterprise ethernet network is then connected to a LAN port on the 4300T. In this example a single public IP address is used to proxy for all of the IP phones and the 4300T routes data traffic to the public side of the firewall.



The 4300T provides the following services:

- WAN/LAN IP routing
- NAT/PAT translation for IP phones. This allows a single public IP address to be used on the WAN link to represent all of the private IP addresses assigned to the LAN IP phones.
- A "VoIP" aware firewall. A full layer 7 gateway for voice traffic.
- Traffic shaping and priority queuing to guarantee the quality of VoIP traffic. These mechanisms protect voice and data traffic from contending for the same network resources to guarantee low latency and the highest call quality possible for VoIP traffic. At the same time they ensure the best utilization of WAN bandwidth by enabling data traffic to burst up to full line rate in the absence of voice calls. Precedence is given to traffic for the range of addresses reserved for the IP phones.
- Call Admission Control (CAC). CAC uses a deterministic algorithm to decide when there are insufficient network resources available to adequately support new calls and then return the equivalent of a "fast busy" to new call requests.
- DHCP server and FTP/TFTP relay. These features are used to simplify and expedite the IP configuration of phones. This also includes VoIP signaling gateway information (MGCP and SIP).
- Call quality monitoring and test tools.
- VoIP survivability is an orderable software option that provides local call switching for SIP clients during a WAN link failure or lost of connectivity to a centralized softswitch or IP PBX. This functionality also includes the ability to make inbound and outbound calls to a local ethernet connected PSTN gateway (SIP).

4300T configuration:

- VoIP ALG enabled
- NAT enabled
- Routing enabled
- Traffic shaping enabled
- DHCP server enabled
- VoIP survivability enabled

Benefits

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Although not recommended the 4300T and IP phones can be installed behind an existing enterprise firewall. In this instance the firewall will have to be configured to allow access to and from the 4300T public IP address for the following ports:

Port Type	Firewall Ports to Open
<b>UDP</b>	161 (SNMP) and 162 (SNMPTRAP)
<b>RTP</b>	1056 to 1255
<b>TCP</b>	SSH TCP 22 for remote management & TCP 80 for WAN configuration-downloads
<b>Telnet</b>	23
<b>FTP</b>	TCP 21 for state-full TCP-session control from 4300T to Edgewater FTP server
<b>MGCP</b>	2427, 2429, 2432, and 2727
<b>NTP</b>	123
<b>SIP</b>	5060 and 5075

IP phones normally point to a local NTP server for their time reference. The NTP port 123 needs to be opened if your network does not have an NTP server.

Please Note: Traffic shaping for this configuration is only available if the enterprise data devices are also installed behind the 4300T.

## 4300T Web Based GUI Configurations

The web page configurations for the various 4300T deployments are shown below. The two darker-shaded rows indicate the *minimum* configuration required for each deployment.

4300T GUI Configuration Page	Suggested Deployment	4300T with existing infrastructure	4300T, behind an existing firewall
<b>Network</b>	Yes	Yes	Yes
<b>VoIP/ALG</b>	Yes	Yes	Yes
<b>NAT</b>	Yes	Optional	Yes
<b>Firewall</b>	Yes	Optional, but recommended	Optional, but recommended
<b>DHCP</b>	Yes	Yes (but should be disabled if DHCP server already exists)	Yes (but should be disabled if DHCP server already exists)
<b>Traffic Shaper</b>	Yes	Yes	Optional (depends on network topology)
<b>Traffic Simulator</b>	Only for testing	Only for testing	Only for testing
<b>System</b>	As needed	As needed	As needed

Please visit our website at [www.edgewaternetworks.com](http://www.edgewaternetworks.com) or contact the Edgewater Technical Assistance Center at 408.351.7255 for additional information or assistance.

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