

LAN Bot



Automating LAN setup –
Unifying user interfaces of network devices -
Configuring hardware, software and services

Introduction

The patent pending LAN Bot will allow for the automatic analysis and set up of your local area network. The software will automatically detect your router and all network devices, such as computers, printers and more importantly, IP telephones. Rather than a separate user interface for each device, there will be one interface that can interact with all devices. It will show all devices and conflicts in a user friendly interface. There will be an automatic configuration, which will allow the software to analyze the network and devices, and automatically configure your LAN and devices to the most optimal settings.

There will also be an option that will analyze the network and show the optimal settings, but will require the user to manually change these settings. This will give the more advanced user more control over the configuration of the LAN.

This automatic configuration will be ideal for novice computer users trying to set up an IP telephone. This type of software will most likely become a standard in the IP telephony community. Hardware and software devices can come automatically equipped with the software. Or the software can be offered for download by different Service providers. Potential customers and interested parties would include Service providers, Hardware and Software manufacturers, Academic institutions, Companies and end customers.

Also Global IP Telecommunications's own IP telephones and gateways will be the first to come equipped with this technology.

Additional features can be added to this software which could optimize its use. One example that is included in the patent would be to have the software automatically look up the best rates for IP telephone services at a given time. Then automatically use the service with the best rate when making a phone call.

This is an example for how to configure different routers to open ports for one IP address. Although the logic is basically the same for all those different network devices, there is still not much common sense noticeable to users.

Current situation

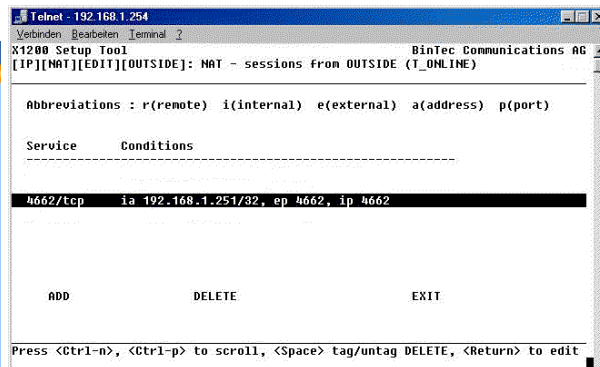
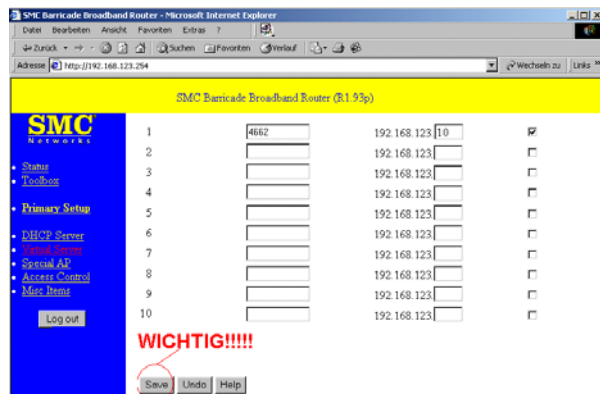
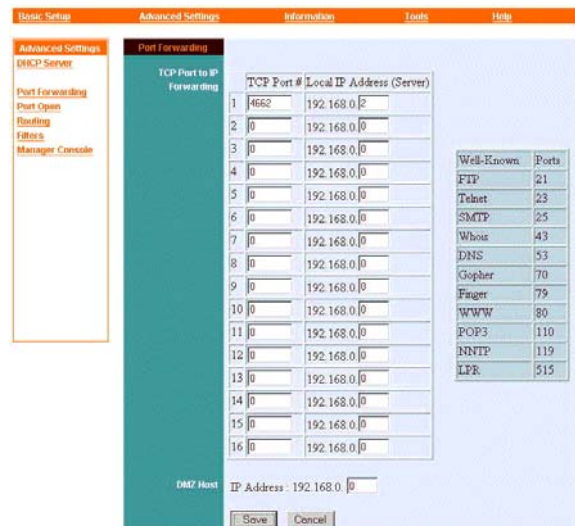
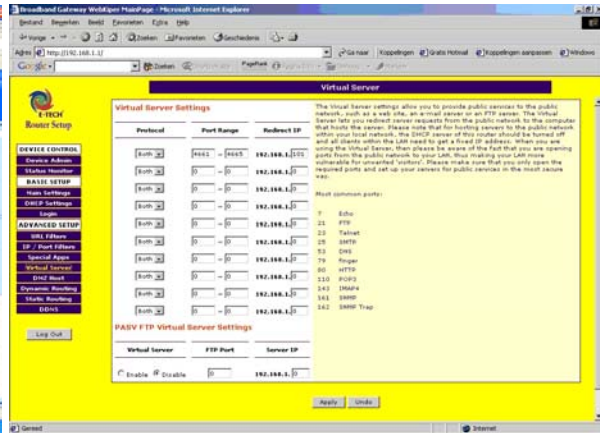


Users are to be swamped with hundreds of settings for devices in local area networks:

- Users can hardly find communication devices and routers and access points in their LAN
- In many cases, settings contradict even for one device
- Settings for different devices collide frequently
- English language prevails => some users must surmount language barrier
- Uncomprehensive terms are being used extensively
- Even experts fail frequently to set up small office and home office local area networks

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- One comprehensive and multilingual user interface instead of many different ones which are difficult to access
- Network topology and collisions can be displayed on one screen
- Settings are chosen automatically by the software
- No colliding and contradicting settings due to built-in intelligence and online testing
- LAN Bot is the only practical tool to ease setting up networks that contain more than a router and one computer

Principle of operation



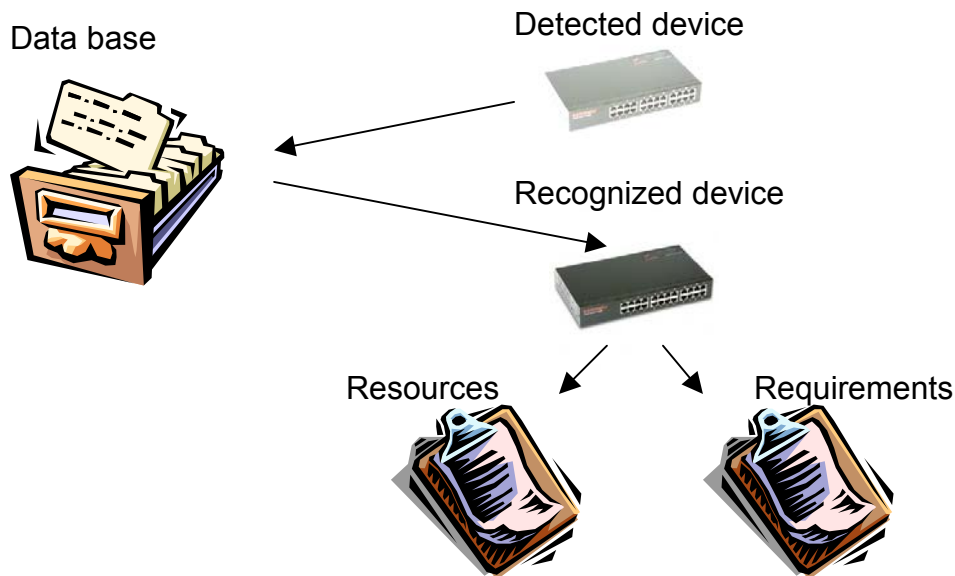
The computer program discovers the local area network using the http protocol, ftp or a different standard protocol. As almost 100% of all network devices can be configured with a standard web browser, the software simply emulates web browser and interactions with an expert user.

In order to locate devices in the LAN, the TCP/IP address of the computer is used as basis for a large number of threads that search in parallel for network devices which are in reach. A Computer with the network address 192.168.0.255 and a subnet mask of 255.255.255.0 can communicate with 255 devices inside the LAN at maximum. Only addresses between 192.168.0.0 and 192.168.0.254 are in reach in this TCP/IP network. By starting 255 threads at once, discovery of the whole network is done within a second.

Devices generally answer to http get commands by sending back an html page containing a device identifier, manufacturer info and a request to enter user name and password.

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If the computer program can find a corresponding entry for this device in its data base and if the required password data is available, the software can read all settings into two tables – one table containing resources and the other containing requirements. A resource may be the presence of an ADSL modem and requirements are user name and password for the ADSL modem functionality.



After all settings for reachable and known devices have been recorded, the program can subsequently compute a configuration for which the total number of collisions and mutual exclusions of all combined settings for all network devices is minimum. The program will open a couple of TCP/IP ports for an IP phone in the firewall and thus satisfy the requirement of an IP phone, „ports 5060 and 8000 must be open“, by making these settings in the router using the resource “open ports for device with a certain IP address”. The program will further set up all devices to operate properly with a DHCP server, if present in the LAN. Alternatively it assigns fixed IP addresses for all devices.

The decision for the better configuration is made by computing a number of solutions, based on user input, logical and physical rules and then by choosing the one with the least minimum number of collisions and contradictions. Using DHCP could be a preference of the user, and to keep all TCP/IP ports closed could as well be a preference. This contradicts with users wanting to play a certain online game that requires a port to be open for the IP address of his personal computer. This contradiction is easily discovered by a simple comparison between tables. The solution is as well obvious: User wants to play the online game => port must be open in firewall. Points of intersection, as found by the robot that spots contradictions and collisions are as well the points which require readjustment of parameters.

After optimized settings have been computed, these new settings are transmitted to all network devices that need new settings.

Advantages:

- Fully automatic discovery and password management, no missing devices
- Users of all levels can secure their wireless network with this expert system

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- Users of all levels can set up interacting devices like IP phones
- The whole network can be displayed with all bottlenecks. Collisions and blocked services can be visualized for the first time
- Network equipment is usually solely available with English speaking user interface. The software can translate settings into any language.
- Software will become as popular as very popular antivirus tools

LAN Bot Development Partners

- Most of the project's source code is open
- Development partners who significantly contribute code, automatically get 50% discount and are entitled to sell licenses of the software according to the price list.
- Development partners who provide device definitions get 30% discount and are entitled to sell licenses of the software according to the price list.

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More information is available at: <http://www.globaliptel.com>

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