

LANbot: Autoconfiguration Visualized White Paper

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LANbot: Autoconfiguration visualized

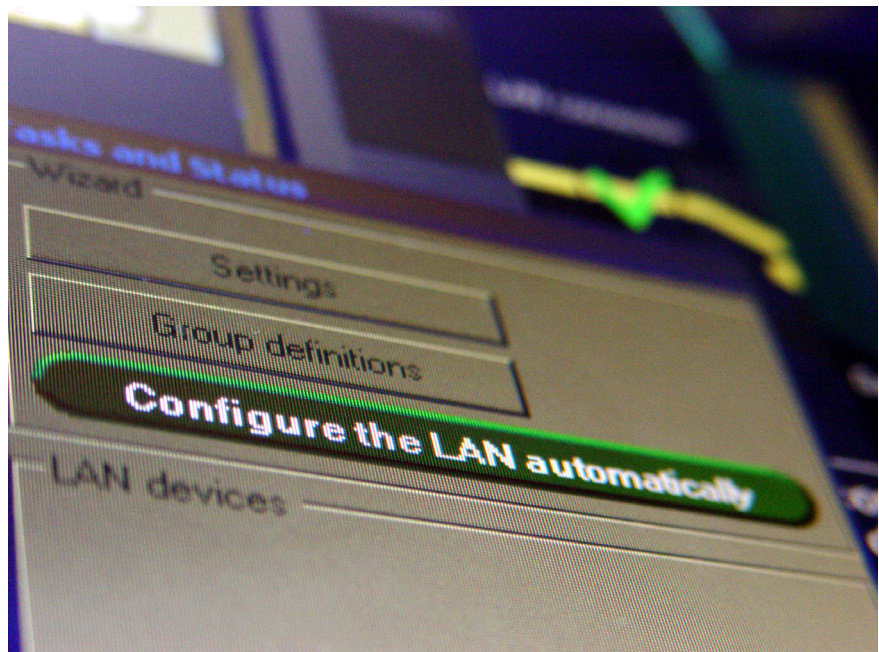
White Paper

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Introduction

Autoconfiguration of devices in a LAN is made possible by dividing the functionality of each LAN device into well-known and standardized function blocks.

These function blocks are filled with data that is read out of the LAN devices and that is converted into a standardized representation. This enables LANbot to treat every well-known function block the same, regardless of specific differences between individual implementations.



Step 1: Check of basic connectivity

- Analysis of basic network topology:
 - read network adapter data
 - find standard gateway
 - determine route of internet traffic: LAN, WAN or LAN_BUT_GATEWAY_IS_PC
 - test HTTP request/response
 - read RAS settings
- Visualize result in the window "Basic connectivity"

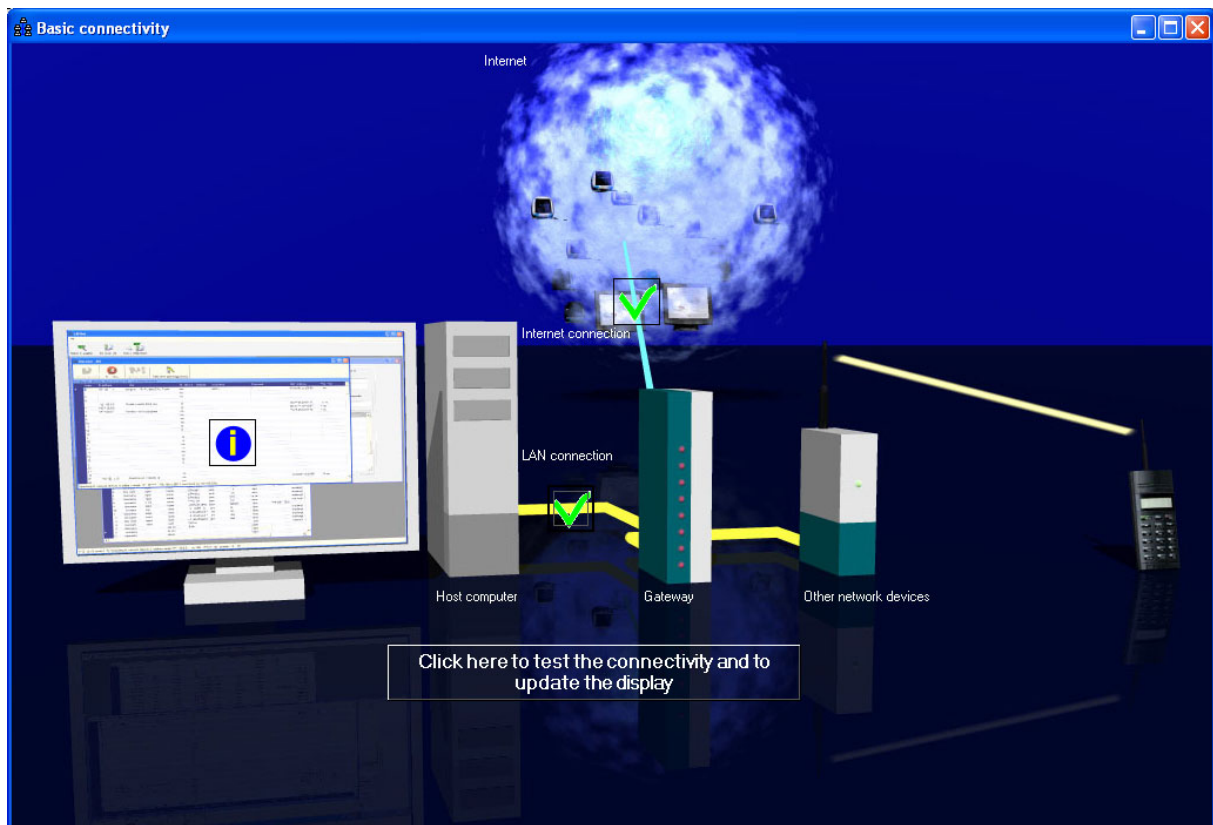


Fig. 1: Check of basic connectivity

Step 2: Discovery of devices in the LAN

- Attempt to contact device by dispatching an HTTP GET request:
 - The answer either contains data that identifies a device or no answer is received response
- If no answer is received or if answer does not lead to positive identification, LANbot tries to contact the device by dispatching a greeting through the remoting interface:
 - If remoting is possible, then LANbot Service is running on the queried device and autoconfiguration is possible.

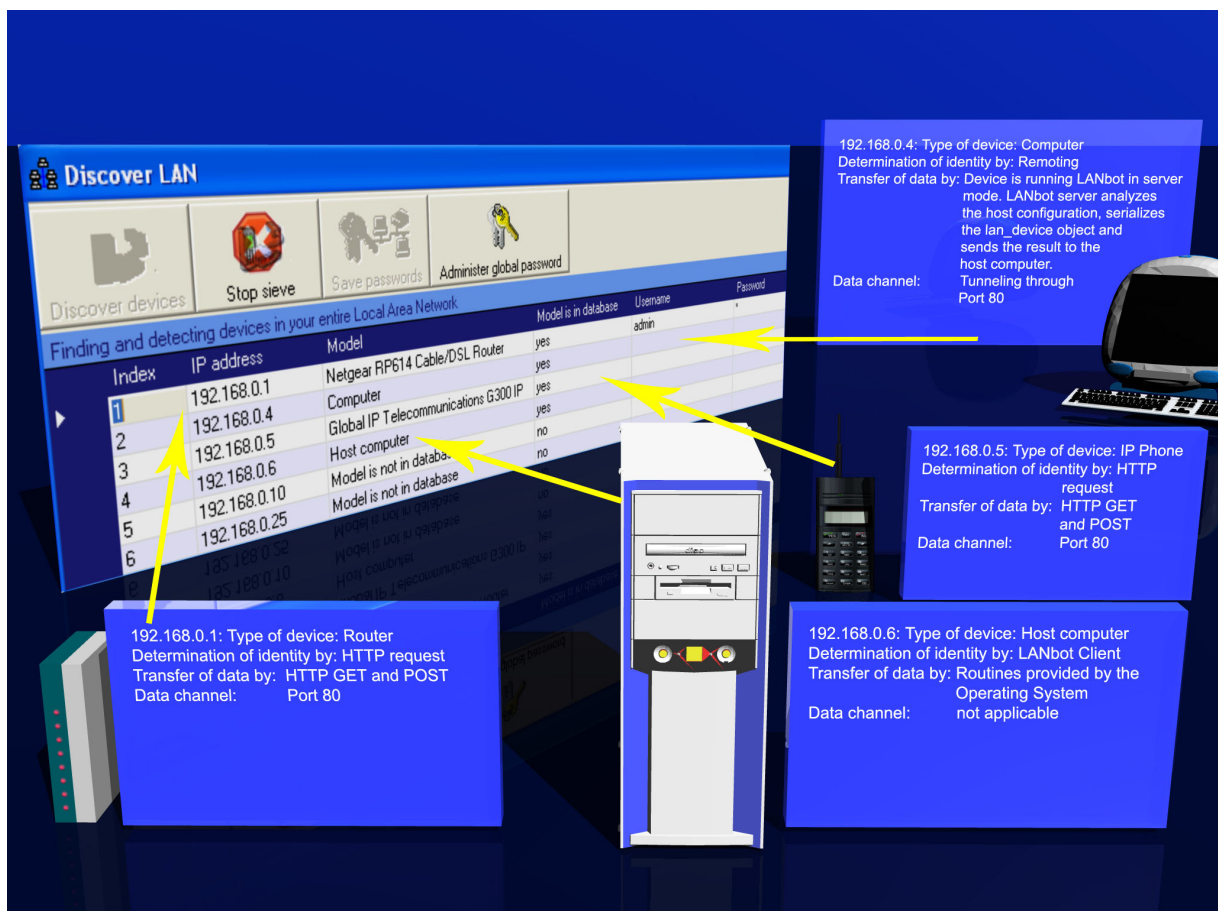


Fig. 2: Discovery of devices in the LAN

Step 3: Buildup and display of objects containing the actual settings of all recognized and configurable devices as well as of target settings

- All recognized and configurable devices are displayed in one window containing actual settings and one window containing target settings:
 - LAN devices are ordered by IP address
 - LAN devices contain uniform functions blocks
 - Uniform function blocks contain settings
 - Function blocks are defined in XML device definition files
 - XML device definition files contain language strings, as well as data required by LANbot to read, write and compute settings
 - XML device definition files may contain C# source code that is compiled by LANbot at runtime and that is executed by LANbot when this is appropriate
 - Runtime compiled C# code has full access to public objects and functions in LANbot
 - Runtime compiled C# code is fully protected against attacks on the source code
 - Settings are editable
- Target settings are programmed into LAN devices during an autoconfiguration run

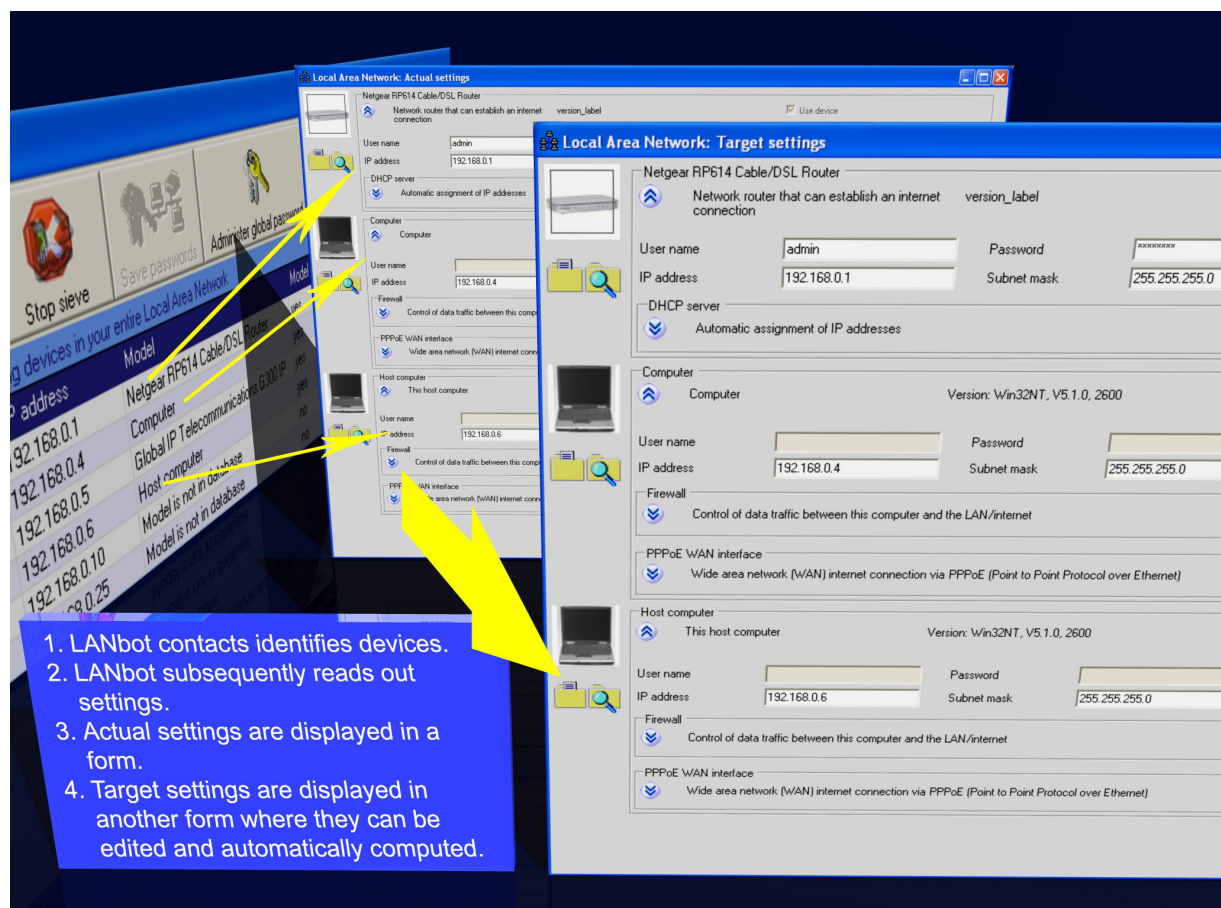


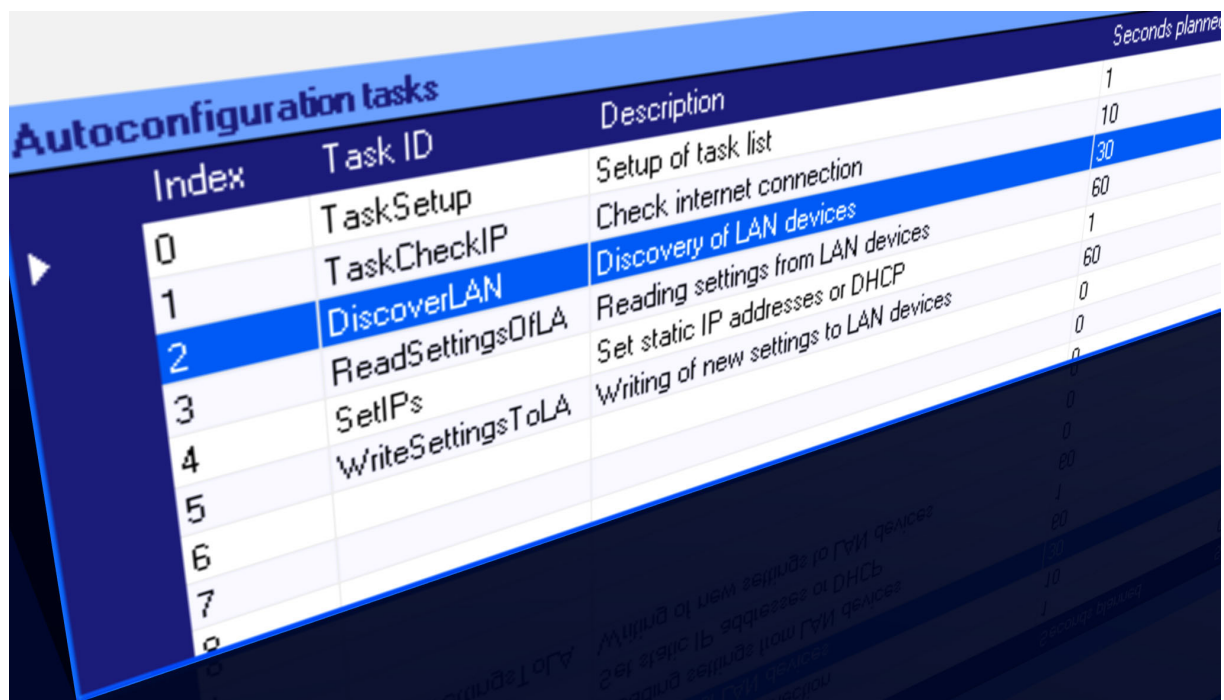
Fig. 3: Buildup and display of objects containing the actual settings of all recognized and configurable devices as well as of target settings

Step 4: Autoconfiguration

- Computation of settings that are optimum for all devices in the LAN so that:
 - Unrecognized devices keep their IP address
 - Valid and non-colliding IP settings are set up in all devices in the LAN
 - Groups of devices in the LAN get similar settings
 - Port conflicts do not occur with firewalls fully enabled
 - Wireless devices are set up for best protection of the LAN
 - IP phones, Instant Messengers and other software/hardware that communicate are detected and the best **interdependent** solution for all settings are computed
 - Preferences of the network administrator are taken into account during the autoconfiguration process
 - Services provided by ISPs are setup correctly with least possible user interaction
- Writing of settings to all configurable devices in the LAN

Note: As of April 2006, only IP address setup is implemented in the Demo Version of LANbot server and LANbot client!

This document will be revised with time as additional features will be implemented in the near future.



Index	Task ID	Description	Seconds planned
0	TaskSetup	Setup of task list	1
1	TaskCheckIP	Check internet connection	10
2	DiscoverLAN	Discovery of LAN devices	30
3	ReadSettingsOfLA	Reading settings from LAN devices	60
4	SetIPs	Set static IP addresses or DHCP	1
5	WriteSettingsToLA	Writing of new settings to LAN devices	60
6			0
7			0
8			0

Fig. 4: Autoconfiguration

For more information: <http://www.globaliptel.com>

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