

# Introducing LanTopoLog

LanTopoLog 2 version 2.xx

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License: Shareware

The network topology discovery function works without any limitations in the unregistered version so you can use the program as free network mapper

System requirements: Windows Vista/2008/7/8/2012/10/2016

LanTopoLog 2 is an application that provides physical network topology discovery, visualization and monitoring.

## Key features

- Automatic physical network topology discovery based on SNMP
- Provide detailed and searchable physical network topology map so you can quickly isolate network connectivity failures
- Network diagram views show which network devices are connected to each switch port; port connections are labeled with port numbers
- Display VLAN IDs
- Ability to auto-discovery new devices as they are added to your network
- LanTopoLog also includes network monitoring tools
- Monitoring device's state (active/inactive) in real-time using ICMP
- Generating alarms when there are failures in the network
- E-mail alerts notifying
- Web browser-based access from anywhere in the network
- LanTopoLog use WMI queries to collect computer inventory information
- Export switch list and switch connection table to csv file
- Export computer list to csv file
- Display device manufacturer
- Display each port's speed
- Network traffic monitoring
- Notify the administrator when traffic thresholds are exceeded
- Easy-to-use interface
- The program do not write anything to the operating system area (registry, system folders) and is portable
- The program is safe to use and does not send any data to anywhere.

Website [www.lantopolog.com](http://www.lantopolog.com)

Feel free to email me any errors or comments to [support@lantopolog.com](mailto:support@lantopolog.com)

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# License

## LanTopoLog 2 License Agreement

### LanTopoLog 2 version 2.xx

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### LICENSE

You are hereby licensed to use the Demo version of the Software for an unlimited period. When you purchase LanTopoLog, you will receive a license key file that will convert the demo into the full version. The license key is bound to up to 3 switches that you select during the registration process. At least one of them must always be present on the LanTopoLog map (although may be temporarily turned off), otherwise your copy of LanTopoLog is not considered registered. If all 3 of these switches are replaced then you will need to purchase the new license. In the future you can add new switches to your network, however, your license remains valid. You need only one license for local network with up to 10000 managed switches. One license allows you to run LanTopoLog on multiple computers simultaneously.

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The LanTopoLog 2 Demo version may be freely distributed, provided distribution package is not modified and form a complete package when distributed. This license must be included with all copies of the Software, and may not be modified from its original format as created by the Licensor.

All updates to the LanTopoLog 2 are free.

If you do not agree with the terms of this license you must cease to use the product.

# Discovery steps

To perform the network topology discovery follow the instructions in the tabs "Step 1", "Step 2", "Step 3".

## **Step 1**

1. Specify the ranges of the IP addresses for switch discovery.

For example: 192.168.0.\* 192.168.0.100-200 172.16.200-255.\*

Obviously you will need to change the SNMP community string from "public" to match your community string.

2. Discover the switches

Click "Discover within all the ranges" or "Discover within the checked ranges"

Discovered switches will be added to the list of SNMP devices (see table right).

If some of your switches are not discovered then test SNMP access to these switches with any other SNMP utility. For example <https://www.paessler.com/tools/snmptester>

3. Check that all switches are present within the list of discovered devices.

If it is not so, then repeat the Step 1 - Sub-Step 1,2

Delete from the list the SNMP devices that are not switches.

## **Step 2**

1. Click "Collect SNMP data from the switches"

In this step the program gathers bridge forwarding table data from the switches.

Changing values in the column "Number of Learned MACs" indicates that collecting process goes successfully. If it is not so, then test access to SNMP Bridge MIB information (MIB OID 1.3.6.1.2.1.17.4.3.1.2 and 1.3.6.1.2.1.17.7.1.2.2.1.2)

## **Step 3**

1. Click "Discover the Topology"

Compare the discovered topology with the actual topology. If necessary, edit the connection list (menu - Service - Options - Discovery - View/edit connection list) and click "Discover the Topology" again.

2. Click "Apply the New Topology" to save the new topology map.

The discovered topology is shown in the tab "Network Browser".

# Notices

The program displays the switch port if at least one MAC address is detected on this port.

Router is shown on the map as a computer.

The program treats the entire switch stack as a single switch with a single IP address.

The program may work incorrectly with some models of switches.

If there is more than one connection between two switches (PVST) then the program may not display these connections correctly. In this case, enable the option "Use manually edited connection list" (Options - tab Discovery) and add these connections to manually edited connection list. Example:

172.16.25.243 port 6 - 172.16.25.248 port 27

172.16.25.243 port 57 - 172.16.25.248 port 83

The algorithm used to discover network topology is not 100% reliable for mapping the entire network and some connections may remain undiscovered (labeled as xx).

There are some recommendations that may reduce the number of unknown connections:

- increase the length of time the switch keeps dynamic MAC addresses in memory before discarding.
- run the discovery process when the majority of computers are alive
- assign manually the root node on the Step 2. The root node switch should be the switch with maximum traffic load
- the computer where you are running LanTopoLog should be connected as near as possible to the root node switch
- enable LLDP (CDP) on the switches
- use manually edited connection list (Options - tab Discovery)

The program displays internal (SNMP) numbering of ports that may differ from port numbering on the switch front panel. See port description if there is a confusion between snmp port number and real port number.

Date/time field explanation:

25/05 - date of last successful ping. If IP address is not resolved then it is SNMP-based discovery date

15:50 - time of last successful ping (today).

18:30y - time of last successful ping (yestoday).

The program displays the ping response time in millisecond (number to the right of each machine).

## Options - General

All options in this tab are obvious and are not described in detail.

## Options - Discovery

Set these options to discover new computers.

If there is a router in your network then enter IP address of the router and router SNMP access parameters. You can enter a few IP addresses separated by commas.

Router MAC-IP table is used to resolve the MAC addresses to IP addresses.

Schedule the discovery process. Also, you can run the discovery immediately (menu - Service - Run Computer Discovery Now).

If the discovery process is already running, then this menu item is inactive.

LanTopoLog uses WMI queries to collect computer inventory information.

WMI queries use current user credentials.

However, you can specify alternate credentials when querying remote computers.

During the discovery process, the program retrieves the MAC address table from a switches via SNMP. If the MAC address of the computer absent from the table of the switch then the program cannot determine the proper location of that computer and move it to the "Pseudo device as temporary location".

There are some recommendations to avoid this problem:

- through the switch settings increase the length of time the switch keeps dynamic MAC addresses in memory before discarding.

- run the discovery process when the majority of computers are alive

It takes some time to move the most of computers to its proper place on the map.

The program uses SNMP oid 1.3.6.1.2.1.17.4.3.1.2 and 1.3.6.1.2.1.17.7.1.2.2.1.2

to get bridge MAC address table. The most of switches support these oids.

If the switch doesn't support these oids then the program cannot locate devices connected to this switch.

During the discovery process, the program tries to resolve a MAC address to an IP address and host name. It can take a few hours until the resolving cycle is finished.

On this option page you can manually set connections between switches. Use this option if some connections remain undiscovered (labeled as xx). Example:

192.168.0.1 port 12 - 192.168.0.2 port 50

The upper (in the tree) switch must be on the left side of the '-' character, the lower switch must be on the right side of the '-' character.

## Options - Web

LanTopoLog cannot act as a Web server.

In order to publish LanTopoLog web pages use any external Web server.

Turn on option "Save network map as htm/php in order to publish it on the Web server" for continuously updating LanTopoLog web pages and set files extension (htm or php).

In the field 1 enter the path where LanTopoLog htm/php files are to be saved.

May be network path (e.g., \\server\sharename)

In the field 2 enter the local path corresponding to LanTopoLog folder web address on the Web server machine. If LanTopoLog and Web server reside on the same machine then enter the same path as in the field 1.

In the field 3 enter LanTopoLog folder web address.

In order to enable search function copy the file ltsearch.cgi into the Web server script directory.

In the field 4 enter HTTP address for the ltsearch.cgi

The following are typical values for Apache Web Server:

1. C:\Apache24\htdocs\ltl
2. C:\Apache24\htdocs\ltl
3. http://hostname.domain/ltl
4. http://hostname.domain/cgi-bin/ltsearch.cgi

The following are typical values for Microsoft IIS Web Server:

1. c:\inetpub\wwwroot\ltl
2. c:\inetpub\wwwroot\ltl
3. http://hostname.domain/ltl
4. http://hostname.domain/scripts/ltsearch.cgi

The HTTP address for the LanTopoLog map: http://hostname.domain/ltl/nettop.htm/php)

You can restrict access to LanTopoLog webpages using PHP. For this you need to add custom php code to LanTopoLog php files. See the file ..\LanTopoLog2\Import\rename\_add\_php.txt for further instructions.

## Options - Traffic

### Switch-to-Switch traffic monitoring

The traffic bar chart shows last 60 minutes in real-time for easy monitoring of network. In the 1 hour chart the one pixel represents 1 minute.

The axis label value depends on the current port speed as follows below:


- if port speed is 10Mbps then the label value is "1" or "2" (Mbyte/sec)
- if port speed is 100Mbps then the label value is "8" or "16" (Mbyte/sec)
- if port speed is 1Gbps then the label value is "40" or "80" (Mbyte/sec)
- if port speed is 10Gbps then the label value is "400" (Mbyte/sec)

The alerts are sent when the average traffic load exceeds the configured thresholds during the preset time interval.

### Monitoring ifInErrors, ifInDiscards counters

The alerts are sent when the percentage of invalid or dropped packets exceeds the configured thresholds.





## Options - Alarms

### Alarm Notification

Choose the method of alarm notification (play sound, execute program/script, send email).

### Send Email Options

You can specify more than one email address.

Define the settings of your SMTP server for the alarm notification via email.

# Options - Ping monitor

## Ping options

Ping Monitor checks if hosts are up and notify when the ping test fails.

Set time interval between two consecutive checks of a monitored object and number of ping attempts before marking a device as "down".

Notify when the ping test fails - Set notify options on the "Alarm" tab.

Edit the list of monitored hosts.

## Indirectly determining the hub or unmanaged switch failure

The program tries to determine hub or unmanaged switch failure using the indirect method. An alarm occurs if the majority of computers that stop responding during the short time are connected to the same hub or unmanaged switch.

Define the thresholds:

The percentage of computers that stop responding

The number of computers that stop responding

This function depends on option:

Time interval between two consecutive checks of a monitored object

To enable this alarm do not set this interval more than 5 minutes.

The switches are not shown in the list of monitored hosts, but Ping Monitor checks them, too.

In some cases it is desirable to stop notification for certain switches.

Add IP addresses for those switches into the list of monitored hosts and put a '-' character before the address (example: -192.168.0.1).

# Import Export

## IP, Hostname Import

If not all IPs and Hostnames get resolved automatically then use the import from MAC-IP-Hostname file. To add computer IP addresses and Hostnames to the network topology map perform the import procedure (menu - File - Import - IP, Hostname Import).

The data fields must be separated by the field delimiter (space ; , ).

The import file can be created with Nmap (use the -oN option to save the Nmap scan result) or with Advanced IP Scanner (save the scan result as a CSV file). The domain(workgroup) and username also can be imported from Advanced IP Scanner scan result file.

## Custom Data Import

To add custom data to the network map perform the import procedure (menu - File - Import - Custom Data Import).

Use CSV file to import data. The CSV file must contain a column for the MAC address.

For each column you can set the width you want to see on the network map.

To hide certain columns from displaying set the column width of 0.

## Export

To export computer list, switch list and switch connection table to csv files perform the export procedure

(menu - File - Export - Export).

The Import and Export procedures can be performed automatically according with the schedule.

## Demo limitations

The unregistered version has the following limitations:

Some time after the program starts:

- the right pane of the network browser becomes non resizable
- web publishing is disabled
- VLAN IDs are no longer displayed
- search function stop working
- display "demo" instead of real data

The unregistered version allows you to test all functionality of the program.

When you purchase LanTopoLog 2, you will receive a license key file that will convert the demo into the full version.

# How to Get a License Key

When you purchase LanTopoLog 2, you will receive the license key file that will convert the demo into the full version.

You need only one license for local network with up to 10000 managed switches.

Follow the instructions below.

1. Discover your network with demo version of LanTopoLog 2 and save the discovered topology (click "Apply the New Topology").  
Open the registration form (menu - Help - How to Get a License Key) .  
Select from the list up to 3 switches using checkboxes.  
Your license key file will be bound to these switches.  
At least one of them must always be present on the LanTopoLog map (although may be temporarily turned off),  
otherwise your copy of LanTopoLog 2 is not considered registered.  
If all 3 of these switches will be replaced then you will need to purchase the new license.  
The switches with no learned mac addresses cannot be selected for the registration.
2. Network ID string will appear in the field below.  
Send Network ID string via email to the [sales@lantopolog.com](mailto:sales@lantopolog.com)  
(copy the string and paste into the email)
3. Purchase LanTopoLog 2 through the program site [www.lantopolog.com](http://www.lantopolog.com)  
Avoid buying from any company not listed in [www.lantopolog.com](http://www.lantopolog.com)
4. After you have made payment, your license key file will be emailed to you.  
Copy the license key file to the folder that is opened when clicking "this folder" link on the registration form and restart the program.

Note: The license key is bound to the MAC address of the switch, so you can change any switch settings (IP address, Name, etc) - the license key remains valid.

In the future you can add new switches to your network, however, your license key remains valid.

# Updating the program. Moving the data.

## Updating to the new version

All updates are free.

Installable version:

Stop the program (if it is running) and install the new version to any directory.

The new version will keep the data and settings of the previous one.

Portable version:

Unzip the new version zip file to any directory.

If you'd like to keep the old data, move the old data files to the new location (see below).

## Moving the data

Installable version:

LanTopoLog data files are located in

C:\Users\<user>\AppData\Local\LanTopoLog2\

Portable version:

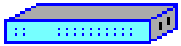
LanTopoLog data files are located in

..\folder where you unzip the downloaded file\Lantopolog2xx\LanTopoLog2\

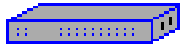
The folder ..\LanTopoLog2\ is created after the first run of the program.

If you wish to keep the data and settings, replace the new folder ..\LanTopoLog2\ with the old one.

# Icon legend



Switch, the ping is successful.



Switch, the ping is unsuccessful.



Socket



Hub, unmanaged switch, wireless access point, ...  
The program displays this icon if two or more MACs are detected on the switch port.



End device (computer, printer, mobile device), the ping is successful.



End device, the ping is unsuccessful.



End device, WMI data are collected.



Tools



Alarm icon. Ping Monitor displays the red icon when a switch stops responding to the ping. See the log for details.



Alarm icon. Traffic monitor displays the yellow icon when traffic load exceeded the configured threshold. Also, Ping Monitor displays the yellow icon when a monitored host stops responding to the ping. See the log for details.



The switch or monitored host resume responding to the ping.



Icon for the new MAC address. To remove the icon, click "Show New" button, then "Clear New" button.



Bar chart of traffic load for the last 60 minutes. Y axis scale is 40 (40 Mbyte/sec). In the 1 hour chart the 1 pixel represents 1 minute.