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Managed Switch Port Mapping Tool

Managed Switch Port Mapping Tool User Manual Version 2

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Managed Switch Port Mapping Tool v2

Introduction

by Kirk Thomas

Managed Switch Port Mapping Tool is a tools for gathering information about devices attached to network switches. It is produced by Northwest Performance Software, Inc.

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Managed Switch Port Mapping Tool

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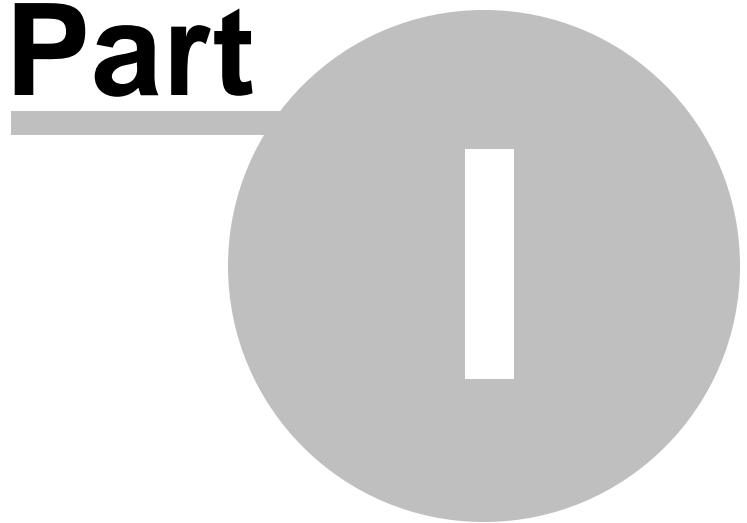
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NetScanTools® Pro User Manual

Part



1 Introduction

1.1 Introduction

The **Managed Switch Port Mapping Tool** discovers and shows the devices connected to physical ports connectors of a managed network switch in a spreadsheet-like grid. Simple Network Management Protocol ([SNMP](#)) versions 1, 2c or 3 are used to communicate with the managed switch and retrieve information. The managed switch can be made by any manufacturer that supports our basic [requirements](#).

Highly recommended for first time users >> [Please review our Getting Started Pages](#)

[Switch Mapping Demonstration](#)

[Videos](#)

Left Panel Controls and Device Information Entry Area

[About the left panel controls.](#)

Right Panel Results Grid

[About the results grid.](#)

Checking for a New Version

[How to check for a new or updated version.](#)

What's New in this Version

[Revision History](#)

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<http://www.NetScanTools.com/>

<http://www.nwpsw.com/>

1.2 Checking for Updates

To check for an updated or newer version of the program, please select **Help/Check for Updates** from the toolbar menu. This launches your web browser and opens a page on our website. If a new version is available, there will be a link on the page for the download. If you have purchased a 2.xx version license, you are entitled to all subsequent 2.xx versions at no cost. An upgrade fee applies to go from 1.xx to 2.xx.

How to install an updated version:

1. After downloading the new version zip file, exit the Switch Port Mapping program.
2. Unzip and run the installation program.
3. Install it to the same location as your old version, you can choose to backup any files replaced during installation (we recommend this).

1.3 Technical Requirements

Switch Requirements

The Managed Switch must have an [IPv4 address](#) and have [SNMP v1, v2c, v3](#) communications enabled. You will need to know the switch's 'read' community name for v1 or v2. The access credentials for v3 are more involved, but at a minimum you will need to know the username and the security level. If you want to turn off a port or update certain parameters in the switch, you will also need to know the 'write' community name for v1 or v2c. The switch must fully support MIB-2 and either qBRIDGE-MIB and/or BRIDGE-MIB.

Host Computer Requirements

This software is designed for operation on Windows 8/7/Vista/2003/XP. We do not support older operating systems. This is a 32 bit application that runs on both 32 and 64 bit versions of the above operating systems.

1.4 Purchasing this Software

For information and to buy online:

<http://www.SwitchPortMapper.com/>
<http://www.switchportmapper.com/buy-now.htm>

Sales/Purchasing Information -- other ways to buy (fax/PO/mail):

<http://www.netscantools.com/howtobuy.html>

If you have purchased a 2.xx version license, you are entitled to all subsequent 2.xx versions at no cost. There is an upgrade fee to go from 1.xx to 2.xx.

1.5 Company Contact Information

Mailing Address:

Northwest Performance Software Inc.
PO Box 1375
Sequim WA 98382

Phone: (360) 683-9888

Business Hours: 8am-4pm Monday-Friday except US Holidays. We are in the Pacific Time zone (Los Angeles time). Please leave a message if you call outside of business hours.

[Click here for local time.](#)

Websites:

<http://www.switchportmapper.com/>
<http://www.netscantools.com/>

Technical Support:

<http://www.switchportmapper.com/support.htm>

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<http://www.SwitchPortMapper.com/>

<http://www.netscantools.com/spmaonline.html>

Email:

<http://www.netscantools.com/email.html>

How to check for Updates (new versions):

To check for an updated or new version of the program, please select **Help/Check for Updates** from the menu.

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1.7 SQLite Copyright Acknowledgements

Website: <http://www.sqlite.org/>

2001 September 15

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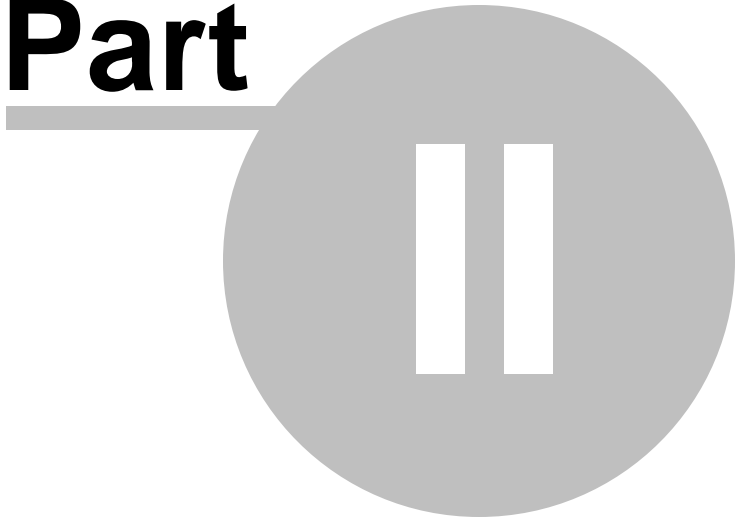
May you do good and not evil.

May you find forgiveness for yourself and forgive others.

May you share freely, never taking more than you give.

NetScanTools® Pro User Manual

Part



2 Software Revision History

2.1 Revision History

2.42 January 22, 2015

- Fixed problem where if history database was empty, you would see an error message about a problem adding a column.
- Updated SQLite to version 3.8.8.1
- Updated MAC address/Manufacturer database.

2.41 January 14, 2015

- Added new optional Voice VLAN column current supporting Cisco switches only. See Settings and Tools/Column Order and Visibility Editor. The columns will be reset to defaults in order to support adding this new column.
- Improved method used to show VLANs on unused ports in Cisco switches.
- Improved method used to retrieve extended information about Cisco switches.
- Added prompt to copy unprotected database to a safe location prior to protecting certain columns.
- Fixed a problem where Enterasys switches might not map correctly.
- XML exporting: a number of non-English European Language special characters are now translated to their ASCII table numeric equivalents. This will improve the importing process into spreadsheets.
- Updated SQLite to version 3.8.7.4
- Updated MAC address/Manufacturer database.

2.40.1 November 11, 2014

- Fixed occasionally seen IP address formatting problem in CDP column.

2.40 November 7, 2014

- Added full support for mapping Extreme Networks switches running operating systems ExtremeXOS 15.x, 12.x back through older ExtremeWare 7.7. Expanded switch properties gathering for Extreme Networks switches.
- Additional improvements for better readability on 3200x1900 Hi-DPI displays.
- Improved algorithm for showing assigned VLANs on unused ports on switches utilizing qBridge MIB reporting.
- Improved support for older 3Com 4500 Series switches by showing assigned VLANs for unused ports.
- If the switch reports an IPv4 or IPv6 Multicast Address, we now indicate that in the Manufacturer column.
- Corrected an issue with LLDP where the MAC address might not always show up correctly.
- Added SNMP Walk Tool to the Help/Technical Support menu.
- Updated SQLite to version 3.8.7.1
- Updated MAC address/Manufacturer database.

2.35 September 5, 2014

- Devices on ports reported by qBridge that are members of more than one VLAN are now shown correctly with multiple VLAN numbers separated by commas.
- The Column Order and Visibility Editor no longer allows you to remove the Interface Index (ifIndex) column from the list of visible columns. If ifIndex is not visible a warning is displayed when you start a manual mapping.
- Results grid default row height is now increased for better readability on Hi-DPI displays.

- Added Help menu links for TeamViewer remote support.
- Added Help menu link to email support.
- Updated SQLite to version 3.8.6
- Updated MAC address/Manufacturer database.

2.34 July 9, 2014

- Importing a Switch List has been improved. Any problems importing the list are now specifically detailed, ie. SNMP device parameters not present or Switch Group not present. New Save button gives you a way to save the import errors to a text file. Problems with cancelling out of Switch List Import has been fixed. Problem with reimporting a list fixed.
- Corrected problem where in some cases the VLAN, IP Address, and Hostname columns would be so wide that the column widths could not be reduced. There is a new checkbox in Global Settings that limits these column widths to twice the header text width. The checkbox is enabled by default.
- Improved message text where Ping Sweep is enabled and no targets are specified.
- Added new right click option to 'Display Cell Background Color Coding Key'.
- Web browser switch report now mentions the way to view the color coding key.
- Last Changed Time column values will no longer occasionally appear negative. They will always be positive or indeterminate.
- The database 'tempSwitchList.db3' is now deleted on program exit.
- Updated SQLite to version 3.8.5
- Updated MAC address/Manufacturer database.

2.33 April 29, 2014

- Added algorithm changes to support specific issues with obtaining the VLANs for HP ProCurve 1810G switches. Switch firmware must be v2.12 or newer.
- Added warning message when a user tries to alter certain tables using Database Maintenance.
- Change: when you click in the IP Address or alias boxes in the left control panel, the Settings window opens for that device.
- Updated SNMP Manager to v2.02.
- Updated SQLite to version 3.8.4.3
- Updated MAC address/Manufacturer database.

2.32 March 14, 2014

- Corrected seven places that could potentially give the SQLITE_BUSY error message.
- Improved operating system reporting in error message.
- Updated SQLite to version 3.8.4.1
- Updated MAC address/Manufacturer database.

2.31 March 4, 2014

- Corrected error 'GetDataFromSwitch:INSERT OR IGNORE INTO tempMacList'.
- Checks for missing SNMPv1/v2c community name added to Settings dialog.
- Checks for missing SNMPv1/v2c community name added to ARP table SNMP retrieval.
- User is now notified if Ping Sweep is enabled and the Ping Sweep target IP list is empty.

2.30 February 26, 2014

- Terminology change: 'Switch Groups' is the new name for Switch Configurations. This should reduce confusion with 'config' as defined by Cisco.
- Major Operational Change to Ping Sweep: Ping Sweep ranges are now specific to each Switch. This means that each Switch can now have a separate Ping Sweep IP range saved only for that Switch. This also extends to Switch Lists - in previous versions Ping

Sweep was only done at the beginning of the Switch List execution. Now it is done for each Switch Group in the list that has Ping Sweep activated and configured with IP ranges. Ping Sweep ranges should be chosen to be the active IP ranges handled by the switch. Ping Sweep now also allows setting of ping packet timeout and retries. (Note: on first use of 2.30, the original Ping Sweep ranges will be copied to each Switch Ping Sweep range. You will need to edit the Ping Sweep range for each switch.)

- Added new method of obtaining MAC/IP Address entries: if a Ping Sweep ping response comes back, a name request is made to the target and responses are used to match IP addresses to MAC addresses (typically only Windows and Apple computer targets will respond).

- Reviewing History: when a previous switch mapping is loaded back into the results grid, the switch IP address now appears in the top program titlebar and the settings for that switch IP address are loaded into the left control panel. Now the user can turn on or off a port on that switch without manually loading the switch settings.

- Added a button to activate the Ping Sweep Editor from the Switch Group Editor.

- Fixed problem with Deleting old history data. Selections labeled 14 days and older were not working correctly.

- Updated SQLite to version 3.8.3.1

- Updated MAC address/Manufacturer database.

2.23 January 20, 2014

- Fixed minor problem where a Warning message ("The switch did not respond with mapping from bridge ports to ifIndex..") might appear on Cisco switches. The switch was mapping correctly and the warning did not need to be shown - it only occurred if VLAN 1 was not used at all.

2.22 January 17, 2014

- Switch List Editor (important fix): corrected problem with the 'move up' control.

Previously, it was copying the data from the device 2 field to both the device 2 and device 1 fields as it moved the selection up in the list. This made a switch list mapping not work correctly because the device 1 field may not be in the switch configuration list.

- Command Line: Added new option to compact all databases.

- Command Line: Added new option to delete data older than a user specified number of days from the history database.

- Review and Search Historical Switch Mapping Results: Added box showing current History Database size.

- Review and Search Historical Switch Mapping Results: Added Delete Results by Date button which gives a method of deleting old results from the History Database.

- Review and Search Historical Switch Mapping Results: Added Compact Database button.

- Review and Search Historical Switch Mapping Results: Fixed problem deleting selected results where an SQLite error would occur deleting from the dot1dBasePortIfIndex table.

- Database Maintenance: Compacting function has been extended to include history database.

- Database Maintenance: Warnings have been added if you try to erase the settings, SNMPdevices and switchConfig tables.

- Support mode event recording expanded.

- Corrected SQLite problem recording the switch list name to the support mode database after completing a switch list mapping.

- Web browser message about duplicate hostnames now suppressed using no error messages command line option.

- Improved speed of writing to history database by removing an unused index.

- SNMP Device Settings: Edit box prompts have been added.

- Updated MAC address/Manufacturer database.

2.21 December 20, 2013

- Corrected problem saving multirow cells (ports with 2 or more attached mac addresses) to the history database. This affects MAC Address, IP Address, Hostname and Interface Manufacturer columns.
- Changes to SQLite interface to better handle the rare occurrence of SQLITE_BUSY messages.
- Improved retrieval of serial number, model number and software versions from Netgear switches.
- Added analysis of used/unused Gigabit Ethernet (type 117) ports on a switch.
- Added new table to history database saving the dot1dBasePortIfIndex for future use.
- Added checkboxes to control the visibility of the auth and priv passwords in the SNMPv3 settings window.
- Added warning to SNMPv3 settings window regarding AuthPriv mode when the database is unprotected.
- Improved SNMPManager utility to better check versions of libeay32.dll.
- Updated SQLite to version 3.8.2
- Updated MAC address/Manufacturer database.

2.20 November 11, 2013

- Revised method for showing VLAN assignment to unused or down ports on Cisco switches. 'N/A' will still appear on stack uplinks and null interfaces.
- Added command line option to show debugging popup messages during command line processing.
- Added command line option to suppress initial error messages that appear when a switch is down.
- Added command line option to load a text list of switches to map in Switch List mode. Also added command line options to turn on Switch List show individual reports, save to XML reports disk and show final report after doing the Switch List from a text list.
- Alterations to Ping Sweep and Hostname Resolver algorithms to reduce chances of database locking issues.
- Corrected problem with CDP and LLDP cells having extra blank lines in them when reloaded (opened) from a saved XML file.
- Updated SQLite to version 3.8.1
- Updated MAC address/Manufacturer database.

2.13 October 10, 2013

- Added new Switch Alias columns to both the left control panel Select Config and Switch Lists/Switch Configuration Editor windows.
- Significant changes to LLDP column: corrected matching of local port to LLDP data. Changed 'unknown' to 'not advertised' when LLDP data was not received by the switch. IP address found in LLDP packet is now shown (if available) and IP address found by lookup in the Combined ARP Table is also shown (if available) and they are noted as to which source the IP came from. The Supported Capabilities are now correctly parsed.
- CDP column: The Supported Capabilities are now correctly parsed. Changed 'unknown' to 'not advertised' when CDP data was not received by the switch.
- Changed the way the number of rows in the results grid of ports is calculated. Some switches may show more ports than they did before, an example is more loopbacks.
- Updated MAC address/Manufacturer database.

2.12 October 2, 2013

- Global Settings: Added new checkbox to substitute the switch alias field into the saved XML filenames instead of the IP address. If there is no alias, the IP is used.

- Command Line Operation: added new option for specifying the output directory for saving XML filenames during Switch List mappings.
- Minor Algorithm change: if the target switch does not have a populated bridge port to ifIndex table, the contents of the ifIndex table are used. This will not affect normal operation, some very old switches may now map.
- Updated SQLite to version 3.8.0.2
- Updated MAC address/Manufacturer database.

2.11 June 13, 2013

- SNMPv3 changes affecting Cisco® switches: corrected problem with context field that was not being added to the SNMPv3 queries.
- Documented changes to Cisco switch running-config that are required to use SNMPv3 and get meaningful results.

2.10 June 12, 2013

- Ping Sweep: significant internal changes to address ARP table issue reported in v2.09. These changes vastly improve collection of ARP information for all supported operating systems.
- Minor wording changes to Web Browser Summary Report. Added details about results of Ping Sweep action.
- Review History: it now remembers the last mode (Switch Lists or Manual Mappings) between successive uses of Review History within a session. If you were looking at a Switch Mapping, then come back to look at another, you do not have to reselect the mode again unless you are changing to a different mode.
- Review History: added switch alias column to Manual Switch Mappings view in the 'Switch Lists or Manual Mappings' list.
- Updated SQLite to version 3.7.17
- Updated MAC address/Manufacturer database.

2.09 May 17, 2013

- Improved logic of qBridge MIB processing to include switches that only use a small part of qBridge MIB, yet enough to map the switch.
- Added results grid right click menu items to reset color of a single cell, column or whole grid to white.
- Added warning to web page report mentioning the effects of ARP table size when Ping Sweep is active. Affects Windows Vista and later operating systems. Please see Microsoft KB949589 for ways to increase the ARP table size. Default is only 256 entries or less depending on your operating system settings.
- Several minor wording changes to web page report.
- Updated MAC address/Manufacturer database.

2.08 April 29, 2013

- Switch Lists: fixed problem introduced in 2.07 executing switch list mappings.
- Installed Version: added method for entering unlock code to Help menu.

2.07 April 22, 2013

- Switch Lists: fixed problem where if more than 9 switches were in the list, the ordering of the switches in the list was not correct.
- Switch Lists: Switch List editor now saves much faster.
- New right click results options: Copy a whole row or the whole results grid to the clipboard.
- Updated SQLite to version 3.7.16.2
- Updated MAC address/Manufacturer database.

2.06 March 4, 2013

- Compatibility improvement: databases as far back as v1.00 can now be opened and will be automatically modified to conform to v2.x formatting.
- Added buttons in Global Settings to create command line presets for using ExtraPuTTY.
- Updated MAC address/Manufacturer database.

2.05 January 28, 2013

- Fixed long standing problem where opening an XML results file would at times show distorted fonts in the results grid.
- Fixed problem where Spanning Tree Protocol multi row cell information was not being saved properly to XML results file. It was not appearing as a multi row cell when imported into a spreadsheet or reopened from this app.
- Fixed problem where community names or SNMPv3 credentials that contained SQL reserved characters like single or double quotes caused an SQL exception.
- Changed the default action of Ping Sweep so that it now will only default to 'active' if the subnet mask is 255.255.255.0 or smaller.
- Updated documentation to reflect methods for saving individual XML files during a Switch List action.
- Updated SQLite to version 3.7.15.2
- Updated MAC address/Manufacturer database.

2.04 December 14, 2012

- Duplicate hostname error message now appears as a page in your web browser if it is encountered during a command line action.
- Double screen painting or blinking on startup has been stopped.
- Updated SQLite to version 3.7.15
- Updated MAC address/Manufacturer database.

2.03 December 3, 2012

- Removed localization from the ifIndex column. This eliminates SQL errors caused when non-numeric characters are found in the column.

2.02 December 2, 2012

- Fixed problem processing reserved characters in SQL commands when saving to the history database for the CDP, LLDP and Interface Manufacturer columns.
- Corrected formatting problem when more than 1 entry per cell appears in LLDP.
- Startup check for stale arp entries now ignores static imported entries.

2.01 November 27, 2012

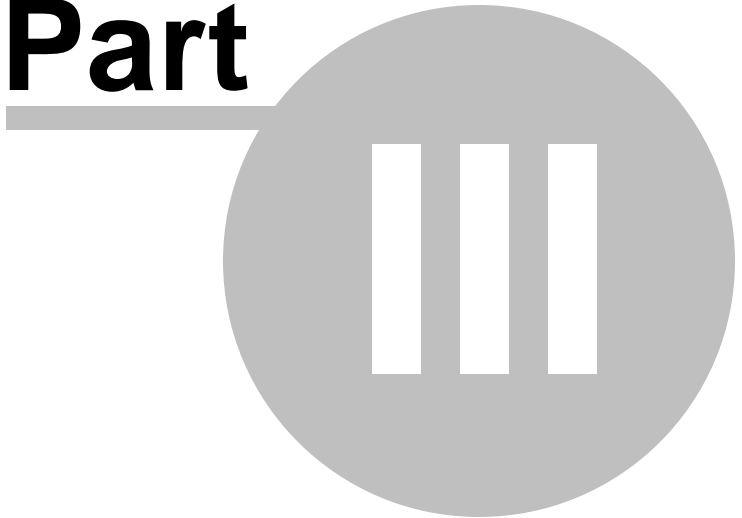
- Fixed problem with SQL inserts into the history database.
- Fixed refresh of status column after any column has been resorted.
- Fixed problem of empty cells when Duplex Mode info cannot be found.
- Minor change to allow display of more than one LLDP or CDP response per port.

2.00 November 23, 2012

- First release of 2.00 series.

NetScanTools® Pro User Manual

Part



3 Getting Started

3.1 Getting Started - Start Here

New Users - Please read all of the Getting Started Sections before you try to use this software.

[Start Here](#) | [What You Need](#) | [Getting ARP Tables](#) | [Map the Switch](#) | [The Results](#)

Important changes introduced in v2.30: Ping Sweep now allows different ranges for each switch. Please review [Ping Sweep](#) and the [Revision History](#).

▣ Overview of the Managed Switch Port Mapping Tool

This software uses Simple Network Management Protocol ([SNMP](#)) version 1, 2c or 3 to communicate with an [SNMP managed network switch](#). A layer 2 switch will give us the [MAC addresses](#) of network devices attached to the switch and the corresponding front panel physical port connectors. Other steps are done to find the [IP addresses](#) that go with those MAC addresses. We call this mapping a switch. The results are presented in a spreadsheet-like grid and the results are automatically saved to a 'History' database.

▣ Application Layout

The [Left Panel Controls](#) contain several input areas and controls. The mapping results are [displayed in a grid in the right panel](#). Columns in the results grid can be reordered or added/removed using the [Column Order and Visibility Editor](#).

Before you go on...

You absolutely need to know that the switch you want to map can be managed using SNMP versions 1, 2c, or 3 - some switches only support v1 and v2c, some only support v2c and v3 like the HP 2520 series. **If you don't know or are not sure, then you need to find out before you can proceed any further.** Please consult the documentation for the switch or talk with the network administrator responsible for the switch.

The next step is where you begin to collect and enter the information you need to start mapping a switch.

[Next Section >>](#)

3.2 Getting Started - What You Need

[Start Here](#) | [What You Need](#) | [Getting ARP Tables](#) | [Map the Switch](#) | [The Results](#)

Before you can map a switch, you need these things.

1. **IPv4 address of the managed switch.** Press the [Settings](#) button and enter it.

Hint: You can also load previous used [Switch Groups](#) so you do not have to constantly go back and re-enter the IP addresses and community names by using the [Select Group](#) buttons that appear next to the Switch IP Address box.

2. **SNMPv1 or v2c: Community name** (this is like a password) if you are going to access the switch or other devices using SNMP v1 or v2c.
3. **SNMPv3: Username** and other credentials required based on the security level.
4. **If you want to see the device IP addresses, you need to decide where [ARP Tables](#) are going to be gathered from.**

The next step will help you understand more about ARP tables, why we need them and what devices have them.

[<< Previous Getting Started Section](#) [Next Getting Started Section >>](#)

3.3 Getting Started - Getting ARP Tables

[Start Here](#) | [What You Need](#) | [Getting ARP Tables](#) | [Map the Switch](#) | [The Results](#)

Why do we need ARP Tables?

- ▣ **Layer 2 switches keep track of the MAC addresses of devices attached to the ports - not IP addresses. We use ARP Table data to match IP addresses to the MAC addresses reported by the switch.**

[ARP tables](#) are kept by every device that communicates over an IPv4 ethernet network. When a device communicates with another device on your local network segment (subnet), it temporarily saves the mapping of the other device's [MAC Address](#) and [IP Address](#) in an ARP table. We build a **Combined ARP Table** of all the MAC and IP addresses we acquire during your session so that we can search for IPv4 addresses that match the MAC addresses retrieved from the switch.

Besides the switch and your computer, you can optionally retrieve ARP tables from two other devices using SNMP.

- **Where should the devices be located?** The device(s) should be on the same network segment as the target switch because the device ARP table needs to have information about the MAC and IP addresses of devices found in the switch.
- **What type of device is good?** A router or core switch is ideal. The device can also be a print server or internal web server. Core devices sometimes have huge ARP tables that can take a long time to be retrieved, so we have placed limits on the size of the ARP table retrieved from the device (default is 1024 records). **You can change this limit** in [Switch or Device Settings](#) for the specific device. The web browser Switch Mapping Summary Report shows you how many ARP table records were retrieved from each device and how fast the device can deliver them to you in records per second.

How to set the program to retrieve ARP tables:

1. **Server or Router 1 (recommended)** - Enter the device IP address and access credentials in [Settings](#).
2. **Server or Router 2 (recommended)** - Enter the device IP address and access credentials in [Settings](#).
3. **Query Switch ARP Table** uses SNMP to retrieve the ARP table in the switch itself. (default is checked)
4. **Query Local ARP Table** accesses the ARP table in the computer running the Managed Switch Port Mapping Tool. (default is checked)
5. **Enable Ping Sweep - Query Local ARP Table** should also be checked. Responding IPs are queried for their MAC addresses using NetBIOS over TCPIP. (default is checked unless your network segment is larger than 254 devices)
6. **Load your own static ARP Tables from a text file.** The file format is a MAC address followed by an IPv4 address, separated by the tab character. One entry per line. Use [Database Maintenance/Import ARP Table](#). There is a setting in [Global Settings](#) that controls whether these entries are deleted when you exit the program.

For best results, we recommend using all of the above methods. The [Ping Sweep](#) option helps to "pre-populate" your local system ARP table prior to retrieving the ARP table found in your computer. Ping Sweep also forces updates to the switch's bridge tables, so if an device has not communicated through the switch for a long time, it will update the switch with that device's MAC address and connection. Responding IPs are queried using NetBIOS over TCPIP for their MAC addresses. All of the ARP tables are merged into the **Combined ARP Table** in the [main database](#). The Combined ARP Table is used to match IP addresses to MAC addresses.

Finally, One More Setting:

Resolve IPs to Hostnames. This selection queries your default DNS to find the computer or device names associated with the IP addresses. You can uncheck this box if you do not need to this -- it will result in a much faster switch mapping.

The next step explains how to map the switch.

[<< Previous Getting Started Section](#) [Next Getting Started Section >>](#)

3.4 Getting Started - Map the Switch!

[Start Here](#) | [What You Need](#) | [Getting ARP Tables](#) | [Map the Switch](#) | [The Results](#)

Mapping the Switch

Once you have entered the required information, press the **Map Switch** to begin the process. Intermediate informational status messages are shown on the status bar at the bottom of the program window.

When the mapping operation is complete, the grid will be filled with information and all the buttons will return to normal state (not disabled). Your web browser will be activated to

display a summary report (you can turn this off in [Global Settings](#)).

The next step explains how to interpret and use the results.

[<< Previous Getting Started Section](#) [Next Getting Started Section >>](#)

3.5 Getting Started - The Results

[Start Here](#) | [What You Need](#) | [Getting ARP Tables](#) | [Map the Switch](#) | [The Results](#)

☐ The Results

The [results appear in the grid](#) as they are gathered. Try out the [right click popup menu](#).

Hints about the results.

- If the MAC Address column is empty and there is more than one row in the grid, your switch is not providing Bridge mib or Q-Bridge mib information. Privileges may need to be enabled in the switch or a setting changed.
- Right click in the results with your mouse to see a menu with many options. These options are also duplicated on the menu bar at the top of the program.
- The column headers describe the types of information below them. If you want to see something like Bandwidth Utilization, click on the menu item Settings and Tools/[Column Order and Visibility Editor](#). If you want to remove a column, use the same editor.
- Bandwidth Utilization needs two successive switch mappings or one mapping followed by a right click/Update In/out Port Bandwidth Utilization to show results.
- If you are mapping a 24 port switch, there will be 24 or more rows of data.
- If you are mapping a stacked switch, please enter Settings for the root or parent switch to see all the switches in the stack.
- Some MAC address cells will have more than one MAC address in a cell. That means the device attached is either another switch or a hub or it is a computer with active virtual machines (the HTML summary report tells you if there are virtual machines).
- Some switches may not report everything we ask for. An example is the duplex mode column. Manufacturers have various ways of implementing this and duplex mode reporting is not standardized.

☐ Summary Report

Once the mapping is complete, the program launches your default web browser to view an analysis of the results in an HTML Summary Report. Display of this HTML summary report is controlled in [Global Settings](#). You can print, save or email the Summary Report from your web browser.

☐ Exporting Results

You can [export the results grid from the File menu](#) as an XML Spreadsheet Schema or tab delimited text file suitable for import into spreadsheets such as Microsoft Excel® or OpenOffice 3. The XML format allows the results to be displayed on the spreadsheet exactly as they appear in the results grid. You can also reload saved XML switch

results back into the results grid at a later time from the File menu.

Problems?

If you have problems communicating with your switch, please see the [troubleshooting](#) section.

[<< Previous Getting Started Section](#)

NetScanTools® Pro User Manual

Part



4 Controls and Results

4.1 Menu Bar Selections

File

Export XML/Save Results - saves the results in [XML or tab separated text file](#) formats.

Import XML/Load Results - import the results from an XML file previously save.

Print Page Options - allows you to change the margins in the printed results.

Edit

Cut, Copy, Paste - standard editing tools that apply to the results in the grid.

Find and Replace - search and replace tools that apply to the results in the grid.

Settings and Tools

Global Settings - activates the [Global Settings](#) control window.

Switch Settings - activates the [Switch Settings](#) window used to define SNMP parameters for the Switch only.

Server/Router 1 Device Settings - activates the [Settings](#) window used to define SNMP parameters for Server/Router 1 only.

Server/Router 2 Device Settings - activates the [Settings](#) window used to define SNMP parameters for Server/Router 2 only.

Enable Database Protection* - encrypts certain fields in the database like community name. If you activate this option, you will be asked for the password you selected as the program starts. If you cannot provide it, the program will exit. Do not lose your password.

Disable Database Protection* - makes plaintext certain fields in the database like community name.

*These two selections are duplicated on the Left Control panel with the lock/unlock button.

Select Previous Switch Group - this activates the [Select a previously used Switch Group](#) window used for quick selection of a previously used group of settings defining access to a switch.

Select Previous SNMP Device to use in Server/Router 1 Fields - this activates the [Select Existing SNMP Device](#) window used for quick selection of previously used or defined SNMP enabled device.

Select Previous SNMP Device to use in Server/Router 2 Fields - this activates the [Select Existing SNMP Device](#) window used for quick selection of previously used or defined SNMP enabled device.

Ping Sweep Editor - activates the [editor](#) used to define the ranges of IP addresses for Ping Sweep.

Column Order and Visibility Editor - activates the [editor](#) used to define the order of the results columns and whether or not a column is visible.

Database Maintenance - activates the [editor](#) used to view some of the tables in the main database.

Use your Web Browser to Contact the Switch - opens your web browser to contact the web interface contained in the switch. Many switches have a built-in web server interface.

Telnet To The Switch - opens a telnet program and contacts the switch using telnet. You may have to install Telnet if you are using Windows 8, 7, Vista. [Please see installing Telnet on Windows 8, 7 or Vista](#). Or as an alternative, you can use PuTTY.

Use SSH to Contact The Switch - launches an external SSH program to contact the switch. The SSH program is located through the registry or you can set it manually in [Global Settings](#).

Connect to the Serial Port (Console) on the Switch - launches an external program to contact the switch through a COM port. PuTTY is capable of this function.

Properties of the Switch - shows the [properties of the switch](#) after it has been mapped. You must map the switch in order to obtain the properties.

▣ Actions

Map Switch Ports - starts the process of mapping the [managed switch](#)..

Refresh Status Column - queries the switch for current up/down status of each port.

Update In/Out Port Bandwidth Columns - queries the switch for current bytes in/out and calculates the bandwidth utilization based on information saved from the previous calculation. The time period used for the bandwidth calculation is shown on the bottom status bar of the window.

Properties of the Switch - shows the [properties of the switch](#) after it has been mapped. You must map the switch in order to obtain the properties.

▣ Connection

Enable/Disable Selected Port are used to turn on or off a specific port. Be careful not to turn off the port you are using to talk with the switch. We check for that, but we cannot guarantee we are right. You may need to [set the write privileges community name or credentials](#) for this to work. The program immediately reports the change, then checks the switch again a few seconds later to be sure that it remained in the state you selected. Requires the ifIndex column to be visible.

▣ Appearance

Application Look (skins) - changes the appearance of the application using many presets. The default is 2013 Clean.

Toolbar - when checked shows the [icon toolbar](#) below the menu controls.

Status Bar - when checked shows the status bar at the bottom of the main window.

Split - changes focus to the splitter bar that separates the left control panel from the right side results area.

Lock Leftmost Column - if selected locks the leftmost column in the results grid.

Unlock Leftmost Column - if selected unlocks the leftmost column in the results grid.

▣ Accessibility

Set Keyboard Focus to the Left Pane - allows users who do not have a mouse to navigate to the left control panel.

Set Keyboard Focus to the Right Pane - allows users who do not have a mouse to navigate to the right side results area.

Help

Help Topics - activates viewing of this help file.

Download PDF Manual - this is a link to download a PDF version of this help file from our website.

Show Tip of the Day - shows the current tip of the day and reactivates showing it at program startup in case the user has disabled showing it.

Technical Support

Support on the Web goes to our website support pages.

Support Mode should be used under direction of our technical support personnel.

Email Technical Support - opens your email client and presets the support email address field.

Remote Support Using TeamViewer - this directs you to a download page so you can download TeamViewer. TeamViewer is software that allows remote control so that we can assist you. This would be used only during telephone support and only with your permission.

SNMP Walk Tool - [a tool used to gather information from a switch or other device using SNMP.](#)

How to Buy - go here and click on Pricing/Buy Now: <http://www.SwitchPortMapper.com/>

Check for Update - opens your web browser to view the current update page on our web site.

New Release Notification Signup - opens your web browser to view the new application version release list signup.

About - shows the program version and release information.

4.2 Column Order and Visibility Editor

This editor allows you to configure the results grid by changing the order of the columns and controlling whether or not a column appears in the results. [Column explanations are here.](#)

How to access the Column Order and Visibility Editor. From the main menu click on **Settings and Tools**, then on **Column Order and Visibility Editor**.

Using the Column Order and Visibility Editor. There are two lists, the left side list is the **Inactive Column List** showing columns that are not visible. The right side list is the **Active Column List** -- columns that are visible. Columns in the Active Column List are arranged such that the top row is equivalent to the leftmost column in the results grid. The bottom row is the rightmost column in the results grid.

To change the order of a column in the Active Column List, click once to select it, then press the **Up** or **Down** button to move it in the list. To remove a column from the Active Column List so that it is no longer visible, click once to select it, then press the left arrow button to move it over to the Inactive Column List. To make a column visible that was not currently visible, locate it in the Inactive Column List, select it, then press the right arrow button to move it to the Active Column List. Then use **Up/Down** to move it to the correct order in the Active Column List.

To restore the Default Column Order, press the Defaults button -- your intentions will be verified, then the column order will be restored to the default view.

Press OK to save the column ordering and visibility in the main database. The results display will be cleared and the columns relabeled at this point.

Notes:

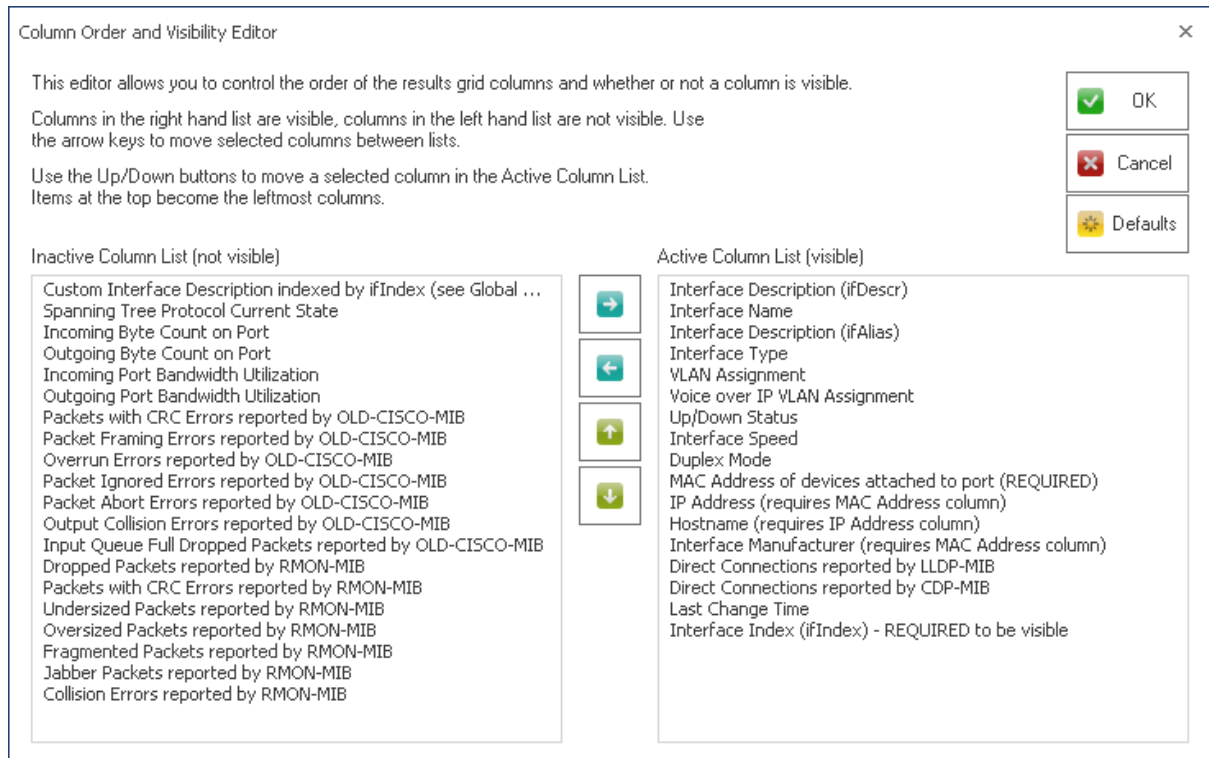
This is the ifDescr description OID:

```
.iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifDescr
```

This is the ifAlias description OID:

```
.iso.org.dod.internet.mgmt.mib-2.ifMIB.ifMIBObjects.ifXTable.ifXEntry.ifAlias
```

The field to enter the custom OID is in [Global Settings](#).



4.3 Menu Bar Buttons

From left to right



[Export/Save Results Grid to an XML or text file.](#) (The XML file can be imported into a spreadsheet such as Microsoft Excel®)

Import/Load XML file into Results Grid.

Cut - usual editing tools that apply to the results in the grid.

Copy

Paste

Print the results - prints the results in the grid.

Enable Selected Port (Green)
 Disable Selected Port (Red)

Enable/Disable Selected Port are used to turn on or off a specific port. Be careful not to turn off the port you are using to talk with the switch. We check for that, but we cannot guarantee we are right. You may need to [set the write privileges community name or credentials](#) for this to work. The program immediately reports the change, then checks the switch again a few seconds later to be sure that it remained in the state you selected. Requires the ifIndex column to be visible.

About the program

Note that [right clicking](#) in the results grid will bring up a popup menu with several of the above items.

4.4 Left Panel Controls

4.4.1 Left Panel Controls

Control Descriptions

Map Switch - this button starts the process of mapping a single [managed switch](#) in manual mode.

Switch Lists - this button opens the Switch Lists controls giving you methods for building and running a mapping of a set of switches.

Stop - pressing this button stops the mapping process.

Global Settings - this button activates the [Global Settings window](#).

Review History - gives access to the History Database for searching and reviewing previous mappings of switches.

Switch Settings (required)

IPv4 Address - displays the IPv4 address of the switch entered in Settings.

Alias - an optional user defined friendly name for the switch. See [Settings](#).

Select Group - activates the [Select a previously used Switch Group](#) window. Use for quick selection of a previously used group of settings defining parameters used to map a switch.

Settings - activates the [Device Specific Settings](#) window used to define SNMP parameters for the switch.

Server/Router 1 (recommended)

IPv4 Address - displays the IPv4 address of an SNMP enabled server or router entered in [Settings](#). An IP address is preferred but a hostname will also work. This device will be queried for its [ARP table](#). Leave this field empty if you do not want to query a device. [Please review](#) this full discussion of the purpose of communicating with this device.

Select Existing - activates the [Select Existing SNMP Enabled Device](#) window used for quick selection of the IP address a

previously used SNMP enabled device.

Settings - activates the [Device Specific Settings](#) window used to define SNMP parameters for this IP address only.

Remove Device - this button is shown in red immediately to the right of the IPv4 address display. It removes the IPv4 address from the display so that no device is queried.

Server/Router 2 (recommended)

IPv4 Address - displays the IPv4 address of an SNMP enabled server or router entered in [Settings](#). An IP address is preferred but a hostname will also work. This device will be queried for its [ARP table](#). Leave this field empty if you do not want to query a device. [Please review](#) this full discussion of the purpose of communicating with this device.

Select Existing - activates the [Select Existing SNMP Enabled Device](#) window used for quick selection of the IP address a previously used SNMP enabled device.

Settings - activates the [Device Specific Settings](#) window used to define SNMP parameters for this IP address only.

Remove Device - this button is shown in red immediately to the right of the IPv4 address display. It removes the IPv4 address from the display so that no device is queried.

Other Controls

Query Switch ARP Table - if checked, the [Arp Table](#) is retrieved from the switch and used to map [MAC addresses](#) to [IP addresses](#).

Query Local ARP Table - if checked, the Arp Table from the computer hosting this program is retrieved and used to map MAC addresses to IP addresses. If you are using Ping Sweep you should have Query Local ARP Table checked and we highly recommend you adjust your system's maximum ARP cache size to 4096. Instructions for doing so are in this [Microsoft Knowledge Base article 949589](#).

Resolve IPs to Hostnames - if checked, IPv4 addresses are resolved to hostnames using this system's default DNS as defined in Control Panel/Network Settings.

Enable Ping Sweep - if checked, all IPv4 addresses in the ranges defined in the [Ping Sweep List Editor](#) are sent an ICMP Echo Request packet. This should only be enabled if you also have Query Local Arp Table checked. If you are using Ping Sweep you should have Query Local ARP Table checked and we highly recommend you adjust your system's maximum ARP cache size to 4096. Instructions for doing so are in this [Microsoft Knowledge Base article 949589](#).

Lock/Unlock indicator and button - if locked, the community name, authentication and privacy fields in the database are not viewable.

Ping Sweep List Editor - activates the [Ping Sweep List Editor](#).

Database Maintenance - activates the [Database Maintenance editor](#).

See also [Right Panel Switch Mapping Results](#).

4.4.2 Global Settings

The Global Settings button on the [Left Panel](#) activates this settings window.

Notes

The Telnet, SSH and Serial Port programs now prefer the use of the open source application PuTTY available for free using the link text we have provided.

The 'Defaults' button resets the values to these settings:

| Setting | Default Value | Scope | Comments and Description |
|--|---------------|--------|--|
| DNS Warning Time (seconds) | 120 | Global | If a timeout occurs, user is given the option of continuing to resolve IPs to hostnames or stop the resolve process. |
| Attempt to resolve '?' IPs every time | Not Checked | Global | Any IPs that have failed to resolve in a previous attempt are given a '?' for the hostname in the resolver table. If checked, it will attempt to resolve those IPs again. |
| Use IP/hostname Resolver Table | Checked | Global | If checked, as IPv4 addresses are resolved to hostnames using your default DNS, those mappings are saved in the resolver table for quick reference in later switch mappings. Think of it as a 'hosts' file. If not checked, the table is erased every time you map a switch. |
| Erase IP/hostname Resolver Table On Exit | Checked | Global | If checked, the resolver database table is erased when the program exits. The resolver database table saves mappings of IPv4 addresses to hostnames from previous DNS queries. |
| Erase Combined ARP Table On Exit | Checked | Global | If checked, the combined ARP database table is cleared out when the program exits. |
| Erase Combined ARP Table Imports On Exit | Not Checked | Global | If checked, IP address/MAC address pairs that were manually imported through Database Maintenance are erased from the Combined ARP Table on exit. |
| Use Alias | Not Checked | Global | If checked, the switch alias field is |

| | | | |
|---|-----------|--------|--|
| field in XML Export Filenames | | | used in the filename when saving XML files. If the alias field is empty, the IPv4 address is used. If unchecked, the IPv4 address is used. |
| Automatically Resize Column Widths | Checked | Global | If checked, the width of the columns in the results grid are automatically sized to match the widest data in the cells in a column. |
| Limit VLAN, IP, Hostname columns to twice header text width | Checked | Global | If checked, the column widths of these columns is limited to twice the width of the header text. |
| Display Post Mapping Analysis in Web Browser | Checked | Global | If checked, an analysis of the switch mapping appears in your web browser after the mapping process is complete. |
| Enable Internet Version Check | Checked | Global | If checked, the program contacts our site to retrieve a very small file containing the current version and a link to information about the latest version. |
| Version Check Timeout | 5 Seconds | Global | Number of seconds the version check waits for our website to respond with the version file. |
| Telnet Program Path | Read-only | Global | Displays the program we will launch to handle Telnet communication. |
| Set Telnet Program | N/A | Global | Press this button to navigate to the .exe program that handles Telnet communication on your computer. |
| Command Line Parameters | empty | Global | Enter any command line parameters your SSH handling program requires. When using Putty you would enter '-telnet -P 23' without the quotes. |
| Default | N/A | Global | Press this to restore the Telnet handling back to the defaults shown in the registry. |
| SSH Program Path | Read-only | Global | Displays the program we will launch to handle SSH communication. |
| Set SSH Program | N/A | Global | Press this button to navigate to the .exe program that handles SSH |

| | | | |
|-----------------------------------|----------------------|--------------------------------|--|
| | | | communication on your computer. We recommend using Putty (http://www.chiark.greenend.org.uk/~sgtatham/putty/) for SSH. Select the .exe and press OK. |
| Command Line Parameters | empty | Global | Enter any command line parameters your SSH handling program requires. When using Putty you would enter '-ssh -P 22' without the quotes. |
| Default | N/A | Global | Press this to restore the SSH handling back to the defaults shown in the registry. |
| Serial Port Program Path | Read-only | Global | Displays the program we will launch to handle Serial Port communication. |
| Set Serial Port Program | empty | Global | Press this button to navigate to the .exe program that handles Serial Port (com1, com2) communication on your computer. We recommend using Putty (http://www.chiark.greenend.org.uk/~sgtatham/putty/) for Serial Port access. Select the .exe and press OK. |
| Command Line Parameters | | Global | Enter any command line parameters your SSH handling program requires. When using Putty you would enter '-serial com1' without the quotes. |
| Default | | Global | Press this to restore the Serial Port handling to no handler. |
| User Custom Description Query OID | .1.3.6.1.2.1.2.2.1.2 | Unique to Switch/Switch Groups | If the custom interface description is made Active in the Column Order and Visibility Editor , the column uses the OID query you specify in the entry area provided. Whatever you enter here must be indexed by IFMIB::ifIndex. (CISCO-STACK-MIB::portName is automatically indexed differently) |
| MAC Address Limit Per Port | Selected | Unique to Switch/Switch Groups | If selected, the number of MAC addresses that can appear in a single cell of the port column is limited to the number given. Default is 16. If the limit is exceeded , a message will appear in the cell below the last MAC address. |
| Unlimited MAC Address | Not selected | Unique to Switch/Switch Groups | If selected, any number of MAC addresses can appear in a single cell of the port column. This could |

| | | | |
|----------------|--|--|--|
| Count Per Port | | | result in long delays while using the program on large trunked networks. |
|----------------|--|--|--|

■ Screenshot

The screenshot shows the 'Global Settings' dialog box with the following sections and options:

- Global Settings:**
 - IP to Hostname Resolver:
 - DNS Warning Time: 120 Seconds
 - Attempt to resolve '?' IPs every time
 - Use IP/hostname Resolver Table
 - Erase IP/hostname Resolver Table On Exit
 - Erase Combined ARP Table On Exit
 - Erase Combined ARP Table Imports on Exit
 - Use Alias field in XML Export Filenames
 - Automatically Resize Column Widths
 - Display Post Mapping Analysis in Web Browser
 - Enable Internet Software Version Check
 - Version Check Timeout: 5 seconds
- Telnet Program Path:** C:\Program Files\ExtraP [Set Telnet Program] Command Line Params: -telnet -P 23 [Default]
- SSH Program Path:** C:\Program Files\ExtraP [Set SSH Program] Command Line Params: -ssh -P 22 [Default]
- Serial Port Program Path:** C:\Program Files\ExtraP [Set Serial Program] Command Line Params: -serial com1 [Default]
- [Get PuTTY here](#) [Preset paths and params for PuTTY]
- [Get ExtraPuTTY here](#) [Preset paths and params for ExtraPuTTY]
- Saved as part of Switch Configuration:**
 - Custom Interface Description Column OID. This OID must be numeric and indexed by ifIndex: .1.3.6.1.2.1.2.2.1.2
 - MAC Address Limit Per Port: 8 (radio selected)
 - Unlimited MAC Address Count Per Port (radio unselected)
 - Custom OID Presets:
 - IEEE8021-PAE-MIB::dot1xAuthAuthControlledPortControl
 - CISCO-STACK-MIB::portName

Buttons on the right: OK, Cancel, Defaults, and a network icon.

4.4.3 Switch or Device Settings

The Switch or Server Router 1/2 Settings buttons on the [Left Panel](#) activate this window. The values are saved independently for each SNMP device. One device could be using SNMPv1 while another uses SNMPv2c and another may use SNMPv3.

The 'Defaults' button resets the values to these settings:

| Setting | Default Value | Comments and Description |
|---|---------------|--|
| IP Address | none | |
| Copy IP to Alias (button) | | This button copies the IP address field to the alias field |
| Descriptive Name or Alias | none | Enter anything necessary to describe the device here. |
| SNMP v1, v2c, v3 | v1 | Simple Network Management Protocol (SNMP) Version. |
| Timeout (seconds) | 3 | How long the SNMP engine waits for a response from the device before returning with a timeout error or doing a retry. |
| Retries | 1 | Number of times to retry doing any communication with the device. |
| Port Number (UDP only) | 161 | The UDP port number that SNMP operates from on the device. |
| SNMPv3 Security Settings (button) | | Activates the SNMPv3 Settings definition window. The button is only active if v3 is selected. |
| SNMP v1/v2c Read Community Name | public | The community name (like a password) required to read data from the switch or other device using SNMP. |
| Copy Read Community Name to below: (button) | | This button copies the Read Community Name field to the Write Community Name field |
| Switch SNMP v1/v2c Write Community Name | public | OPTIONAL: Only applies to switches. Does not apply to other devices. The community name (like a password) required to write data to the switch using SNMP. This is used to turn ports on and off and change some switch parameters from the Switch Properties window. |
| v2c/v3 Bulk Transfer - Max Bulk | 32 | If SNMP v2c or v3 is being used AND this value is greater than zero (0), bulk transfer mode will be used to read data from the switch and devices. This mode uses less bandwidth and gives faster results. |
| Arp Table Limit | 1024 | This is the limit of how many ARP cache records to retrieve from the device. If you are using a core switch or another devices that has many ARP table records, you can increase this limit. Doing so will add more time to the time it takes to download the ARP table from the device. |
| Device Interrogation Cycle Time | 5 | This value (in minutes) controls how long to wait between successive ARP Table queries for a device. This means if you have a switch list and two switches both have the same secondary |

| | | |
|--|--|--|
| | | <p>devices being queried for ARP tables, the first queries will happen. Then if it is under 5 minutes when the app gets to the devices again, it will skip querying for ARP tables. This is done to reduce bandwidth requirements since changes normally do not occur in short time periods.</p> |
|--|--|--|

■ Screenshot

Device Specific Settings ✕

The settings here are unique to this device and are saved for future retrieval.

Device (Switch or other SNMP enabled device)

IP Address

 ↔ Copy IP to Alias

Descriptive Name or Alias

SNMP Settings For This Device (required)

| SNMP Version | Timeout | Retries | Port Number |
|-------------------------------------|--------------------------------|--------------------------------|----------------------------------|
| <input checked="" type="radio"/> v1 | <input type="text" value="3"/> | <input type="text" value="1"/> | <input type="text" value="161"/> |
| <input type="radio"/> v2c | | | |
| <input type="radio"/> v3 | 🔒 SNMPv3 Security Settings | | |

SNMP v1/v2c Read Community Name

Switch SNMP v1/v2c Write Community Name (optional)

OPTIONAL--not required to map a switch: This sets the community name used to write to the switch during port enable/disable and when changing name, contact and location values.

↔ Copy Read Community Name to below:

Write Community Name (optional)

OK

Cancel

Defaults

v2c/v3 Bulk Transfer

Max Bulk Reps

Enter '0' to disable.

Other

Arp Table Retrieval Limit From This Device

⬆️ ⬇️ ⬆️

Larger ARP tables will take longer to download.

Device Interrogation Cycle Time

⬆️ ⬇️ ⬆️ minutes

The minimum allowable time between successive ARP Table queries for this device.

4.4.4 SNMP Version 3 Settings

SNMP version 3 is supported in this software within certain limitations. The non-encrypted mode of SNMPv3 is supported without any changes. This means you can use noAuthNoPriv security level without any problem. You can also use authNoPriv with MD5 authentication. However, to use authNoPriv with SHA or the authPriv security level, you must switch the SNMP DLL and obtain a third party OpenSSL DLL to use with the

encryption compatible SNMP DLL.


This implementation of SNMPv3 is based on the User Security Model (USM). This means that there are a list of Users and attributes on the target SNMP enabled device.

If you are going to be using SNMPv3 and Cisco IOS switches, [please read this](#).

▣ Procedure to change to the full SNMPv3 encryption capabilities

First you must ascertain if you have OpenSSL's libeay32.dll in your current system path.

- ✓ On the left control panel, press **Switch Lists**.
- ✓ Press Device **Settings Editor**.
- ✓ Select any device and press **Edit Device** (or double click on the device in the list).
- ✓ Change the SNMP version setting to v3.
- ✓ Press **SNMPv3 Security Settings**. On the right side you should see something like this:



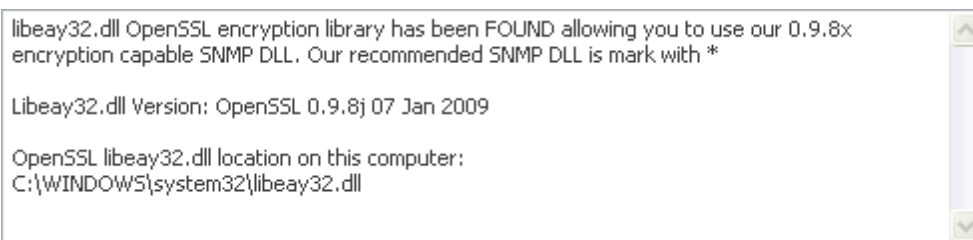
```
libeay32.dll OpenSSL encryption library
is available allowing authPriv.

Version: OpenSSL 0.9.8j 07 Jan 2009

DLL location:
C:\WINDOWS\system32\LIBEAY32.dll
```

It will either show no libeay32 found or the path to the one it does find. Note the libeay32 version number. The version is critical because the changes in the OpenSSL libeay32.dll between 0.9.8.x and 1.0.0 were major enough so that they are incompatible. To account for this, we have three versions of our snmp.dll. One that does not work with encryption (default) and one that works with libeay32 0.9.8.x and another that works with 1.0.x.

- ✓ Press Launch SNMP Library Manager and view it. There will also be statement about which DLL to use as shown below:



```
libeay32.dll OpenSSL encryption library has been FOUND allowing you to use our 0.9.8x
encryption capable SNMP DLL. Our recommended SNMP DLL is mark with *

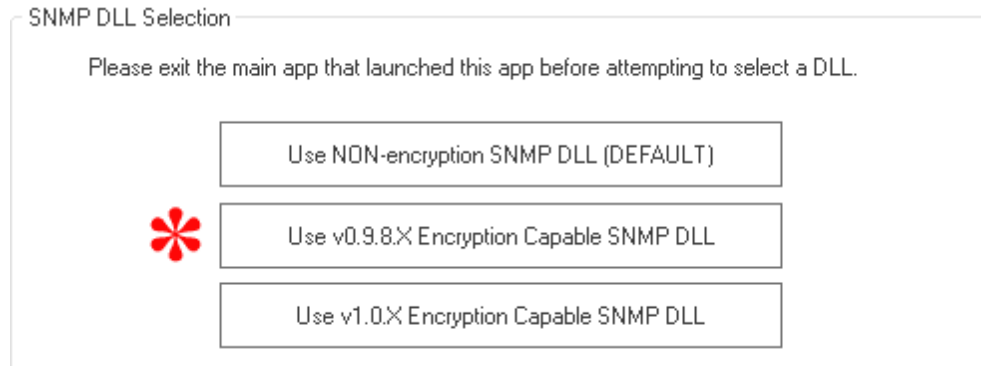
Libeay32.dll Version: OpenSSL 0.9.8j 07 Jan 2009

OpenSSL libeay32.dll location on this computer:
C:\WINDOWS\system32\libeay32.dll
```

What if you don't have libeay32.dll on your system?

- ✓ Press the button Where to get the OpenSSL libeay32.dll. There are several sites where it can be downloaded as part of open source packages. Get the DLL and copy it either to system32 or to the directory where Managed Switch Port Mapping Tool executable spmap.exe is located.

After you have obtained libeay32, restart the Library Manager and look for the suggested SNMP DLL to use. Press the suggested (*) button. (Go back and exit the Managed Switch Port Mapping Tool before pressing one of these buttons)



SNMPv3 Settings Fields

Access Info

Username - this field contains the username that is defined in the switch or SNMP enabled device. It applies to all three security levels and is different for each security level. The field is sometimes also called a Security Name.

Context - this field is defined as follows in RFC5343: "An SNMP context is a collection of management information accessible by an SNMP entity. An item of management information may exist in more than one context and an SNMP entity potentially has access to many contexts [RFC3411]. A context is identified by the snmpEngineID value of the entity hosting the management information (also called a contextEngineID) and a context name that identifies the specific context (also called a contextName)."

Security Level

noAuthNoPriv - this selection means there is no authentication and no privacy encryption. Totally unencrypted. This mode is supported by the default SNMP DLL installed with this app. It is the closest mode to SNMP v1 and v2c.

authNoPriv - this selection means there is authentication, but no privacy encryption. When selected, you can use MD5 authentication without the encryption compatible SNMP DLL and libeay32.dll. To use SHA, you must change to the encryption capable SNMP DLL and libeay32.dll. You must provide an Authentication Password (passphrase).

authPriv - this selection requires the presence of both encryption compatible SNMP DLL and libeay32.dll. This selection activates the Privacy selections and Privacy Password field. It is the most secure selection. ***If you use this mode, we strongly suggest you use Database Protection to mask the passwords saved in the spmap.db3 database - see Menu Item Settings and Tools/Enable (Disable) Database Protection.***

Authentication

MD5 - available for use with authNoPriv or authPriv. Requires Authentication Password to be completed.

SHA - available for use with authNoPriv or authPriv. Requires Authentication Password to be completed. Also requires libeay32.dll and our encryption compatible SNMP DLL.

Authentication Password - a word or phrase required with the username.

Privacy - requires libeay32.dll and our encryption compatible SNMP DLL. Only available with authPriv Security Level.

DES - uses DES to encrypt the Privacy Password.

AES - uses AES to encrypt the Privacy Password.

Privacy Password - a word or phrase required with the username.


4.4.5 Select Switch Group

This window is used to select from previously used switch groups.

Definition: A switch group is defined as the unique combination of the Switch IP Address, Server/Router 1 IP Address, and Server/Router 2 IP Address.

The switch group database table is updated whenever Map Switch is pressed or by editing through the Switch Lists controls.

Note: a Switch Group was previously called Switch Configuration, but this was changed to avoid confusion with 'config' as defined by Cisco.

Press the  in the left control panel Switch Settings group to activate this window.

Select a Switch Group X

A Switch Group is defined as a unique combination of previously used Switch, Primary and Secondary IP Addresses.

Switch Groups retain all the settings from the left panel and the device specific settings.

Switch and other device SNMP settings are accessed by pressing the Settings button in each device group.

OK
 Cancel

| RecNo | Switch IP Address | Switch Alias | Server/Router 1 IP Address | Server/Router 2 IP Address |
|-------|-------------------|--------------------------------|----------------------------|----------------------------|
| 1 | 192.168.0.140 | Extreme Networks | | |
| 2 | 192.168.0.150 | Procurve 1810G | | |
| 3 | 192.168.0.191 | Cisco SF300 | | |
| 4 | 192.168.0.191 | Cisco SF300 | | 192.168.0.44 |
| 5 | 192.168.0.191 | Cisco SF300 | 192.168.0.222 | |
| 6 | 192.168.0.192 | ProCurve Switch 2520-24-PoE | | |
| 7 | 192.168.0.194 | 3750 base 0 | | |
| 8 | 192.168.0.195 | Netgear | | |
| 9 | 192.168.0.195 | Netgear | 192.168.0.240 | |
| 10 | 192.168.0.195 | Netgear | 192.168.0.240 | 192.168.0.243 |
| 11 | 192.168.0.196 | Cisco SF300 | | |
| 12 | 192.168.0.198 | HP | | |
| 13 | 192.168.0.199 | 3750 base 0 | | |
| 14 | 192.168.0.199 | 3750 base 0 | 192.168.0.243 | |
| 15 | 192.168.0.200 | SMC | | |
| 16 | 192.168.0.220 | | | |
| 17 | 192.168.0.220 | | 192.168.0.243 | |
| 18 | 192.168.0.221 | Netgear FSM7326P | | |
| 19 | 192.168.0.222 | HP J4813A ProCurve Switch 2524 | | |
| 20 | 192.168.0.222 | HP J4813A ProCurve Switch 2524 | 192.168.0.240 | 192.168.0.243 |
| 21 | 192.168.0.223 | Cisco Catalyst c2950 | | |

4.4.6 Server/Router 1 or 2 Device Discussion and FAQs

The [left panel controls](#) have two entry fields for querying a **Server or Router** device for ARP tables. This is a detailed discussion of how these fields are to be used. You can also refer to the [Getting Started](#) section for similar explanations.

Discussion

You may use one or both of these devices or neither one. The software will attempt to query the device(s) for their ARP tables using SNMP protocol. The ARP table is then used to populate the Combine ARP table in the [main database](#).

These devices must be SNMP v1, v2c or v3 enabled. We require a read privileges to access the device ARP table. The device should be on the same network segment as the target switch because the ARP table needs to have information about the MAC and IP addresses of devices found in the switch. A core switch or router is ideal. If you use a core device, we have placed limits on the size of the ARP table retrieved from the device (default is 1024 records). You can change these limits in [Global Settings](#). Be aware that large ARP tables can take a long time to be retrieved--several minutes (one user reported 24 minutes for an 8,300 record ARP table) - it is faster to use SNMP v2c or v3 and Bulk Transfers (see [Settings](#)).

If you refer to the HTML report displayed at the end of a mapping session, it can help you determine how many ARP table records were retrieved from each device and how fast the device can deliver them to you. We do not require you to install SNMP on any existing device, please use a device that already has SNMP access.

FAQs

Why do we have these entry fields?

They are two of the four methods we use to obtain ARP tables to build a combined ARP table.

What is an ARP table?

An [ARP table](#) is used by ethernet networks to map IP addresses to MAC addresses. Ethernet communicates with MAC addresses. TCP/IP communicates with IP addresses.

Why do we need ARP tables?

ARP tables are used to map MAC addresses to IPv4 addresses. The switch keeps track of the MAC addresses of devices attached to the physical ports.

What types of devices will have ARP tables?

Routers, switches, print servers, web servers, or other network devices. Even Windows desktop workstations have ARP tables if SNMP service is enabled.

Why does the device need to support SNMP?

We use SNMP to query the device for it's ARP table.

How can I tell if the device I have chosen has a "good" ARP table?

When the switch mapping process is complete you will see an HTML report appear in your web browser. In it is a section called Switch Port MAC Address to IP Address Mapping Analysis. This gives the count of ARP records retrieved from each of the four sources. If you look down further in the Timing Report, you will see Server/Router 1/2 Device ARP Table Retrieval Time along with the records per second. This will help you

determine how well the device you have chosen is performing.

It is taking a LONG time to retrieve the ARP table from my core switch, why and how can I speed it up?

The time it takes is proportional to how many records are contained in the device ARP table and how fast the device sends them to us. You can adjust the maximum number of records to retrieve via SNMP from the switch or the server/router devices by going into [Device Settings](#) and lowering the number. The default is 1024 records.

Do I need to add SNMP service to my DNS in order to use the Server/Router 1/2 devices?

No, we do not suggest adding SNMP service to anything unless you do not have a device to communicate with. If you do activate SNMP, be sure to chose a community name that is not the default -- ie. do not use "public".

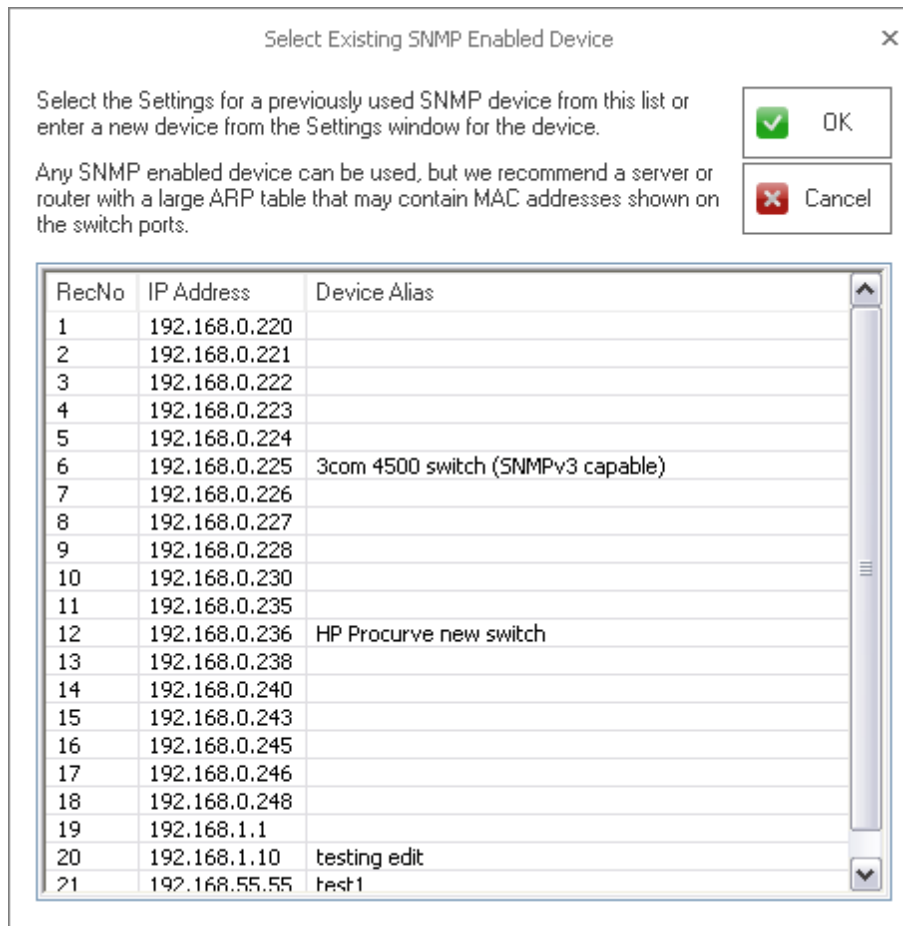
My combined ARP table is large, yet the HTML report shows the IP/MAC address ratio as being not too good (less that 50% IPs matching MACs), what can I do?

The combined ARP table can be viewed in the [Database Maintenance tool](#). The ratio represents the number of IP addresses found as a function of the total MAC addresses shown in the results. If your ARP table is fairly large, then it might be that your Server/Router 1/2 devices do not have ARP tables that show the devices attached to the switch. The Server/Router devices should be connected on the same network segment as the devices attached to the switch.

4.4.7 Select Existing SNMP Enabled Device

This window is used to select from previously used SNMP enabled devices entered in the Server/Router 1, 2 and Switch fields. This way you can rapidly select from previously used SNMP devices without having to retype the information.

Press  to the right of the Server/Router 1 or 2 IP Address entry field to activate this window.



4.4.8 Switch Lists

4.4.8.1 Switch Lists

Switch Lists are a way to map a number of switches sequentially either manually or on a scheduled basis. The switches and the server/routers to query much be predefined ahead of time. The results of each mapping are saved in the History Database for review at a later time.

The Process

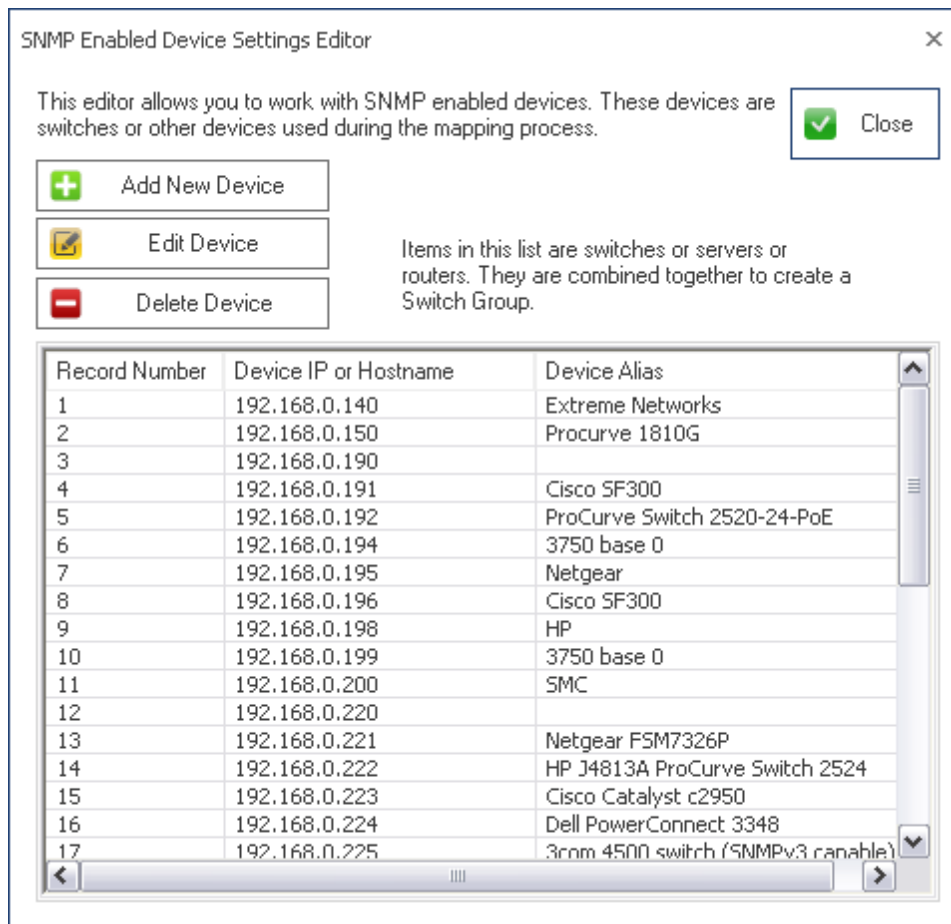
A Switch List consists of hierarchical information. In other words, the list is composed of a set of switch groups. Each group consists of the switch device settings and if used, server/router 1 and 2 settings. To create a list, you have to start at the lowest level and define the switch and server/router devices using the Device Settings Editor. Next you assemble them together using the Switch Group Editor. Then you can assemble the Switch Groups together as a Switch List.

▣ **Lowest Level: Creating and Editing Device Settings: Switches and Server/Router 1/2 Devices**

- ✓ On the Left Control Panel, press **Switch Lists**.
- ✓ Press **Device Settings Editor**. You will be viewing the SNMP Enabled Device Settings Editor.
- ✓ Press **Add New Device**. If editing an existing device, double-click on it or select it

and press **Edit Device**.

- ✓ Edit the [Device Specific Settings](#) - ie. SNMP settings for the device. Pay careful attention to the **Device Interrogation Cycle Time** if you are defining a server/router because it tells the Switch List engine to avoid contacting the device for a time period if the device appears more than once in the Switch List. Also be sure to consider the **Arp Table Retrieval Limit** because it controls how many Arp table records are downloaded from the device. A large number will take a long time. Press OK when complete.
- ✓ When done editing devices, press Close.



Mid-Level: Creating and Editing Switch Groups

Note: a Switch Group is a grouping or set of up to three (3) devices including the switch.

- ✓ On the Left Control Panel, press **Switch Lists**.
- ✓ Press **Switch Group Editor**.
- ✓ Press **Add New Group**. If editing an existing group, double-click on it or select it and press **Edit Switch Group**.
- ✓ Press **Select Switch** and find the switch in the list of SNMP enabled devices. You may also press **Select Device** to find a device that will have direct information (ARP table) about the network segment connected to the switch. Choose the other

settings as required.

✓ When done editing the Switch Group, press OK.

✓ You may also access the [Ping Sweep List Editor](#) for the selected switch from here.

IMPORTANT: Each switch with defined Ping Sweep IP ranges and Enable Ping Sweep checked will do a ping sweep operation at the beginning of mapping the switch.

Edit Switch Group

A Switch Group is defined as a unique combination of the Switch IP Address, Server/Router 1 IP Address, and Server/Router 2 IP Address.

Switch IP Address: 192.168.0.140 [Select Switch] [Ping Sweep List Editor]

Server/Router 1 IP Address: [Select Device] [Query Switch Arp Table] [Query Local Arp Table] [Resolve IPs to Hostnames] [Enable Ping Sweep]

Server/Router 2 IP Address: [Select Device]

Custom Interface Description Column OID. This OID must be numeric and indexed by ifIndex: .1.3.6.1.2.1.2.2.1.2

Custom OID Presets: IEEE8021-PAE-MIB::dot1xAuthAuthControlledPortControl, CISCO-STACK-MIB::portName

MAC Address Limit Per Port: 16 [Unlimited MAC Address Count Per Port]

OK Cancel

Top Level: Creating and Editing a Switch List

✓ On the Left Control Panel, press **Switch Lists**.

✓ Press **Create New Switch List**. If editing an existing list, double-click on it or select it and press **Edit Switch List**.

✓ Enter a Switch List Name.

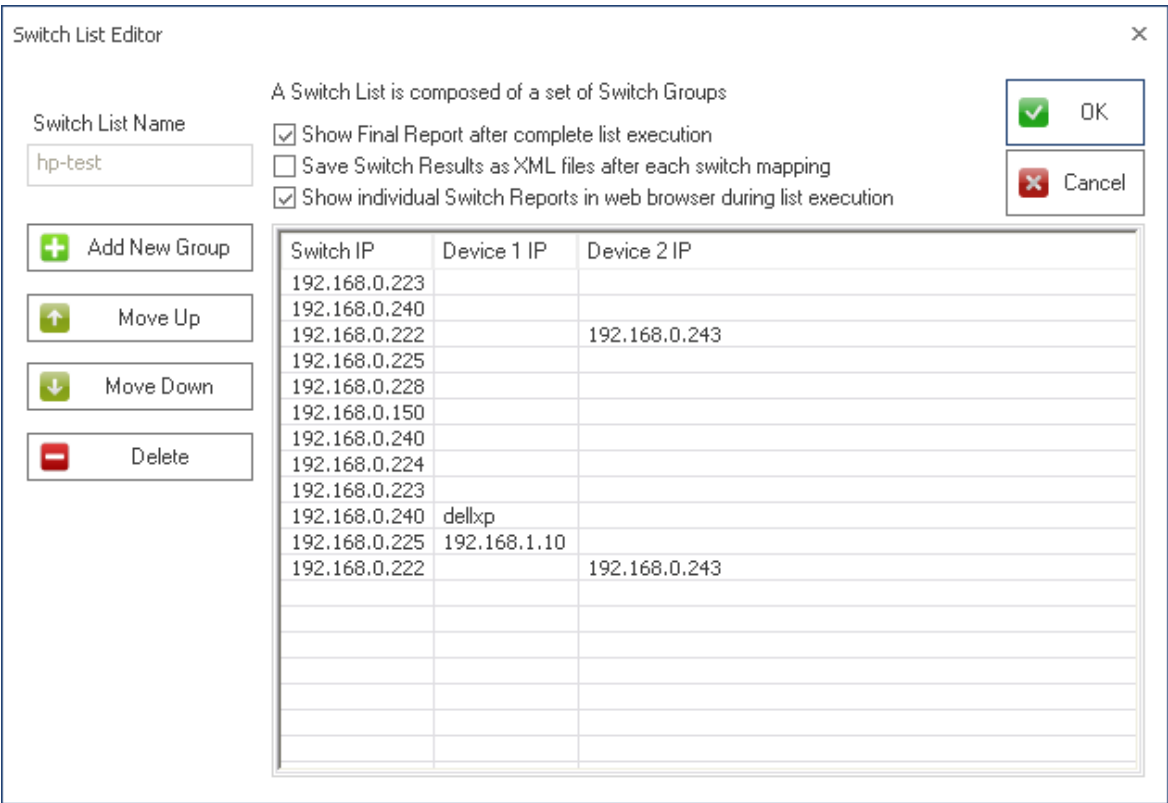
✓ Press **Add New Group** and select a Switch Group from the list. Add as many Switch Groups as you will need. Each is mapped in the order viewed in the list, so you can press Move Up/Down to change the order. If your Switch List name has already been used, you will be told and you will have to change it. Press OK to close.

About checkbox options:

Show Final Report after complete list execution - this shows a summary report in your web browser after the switch list has been completed.

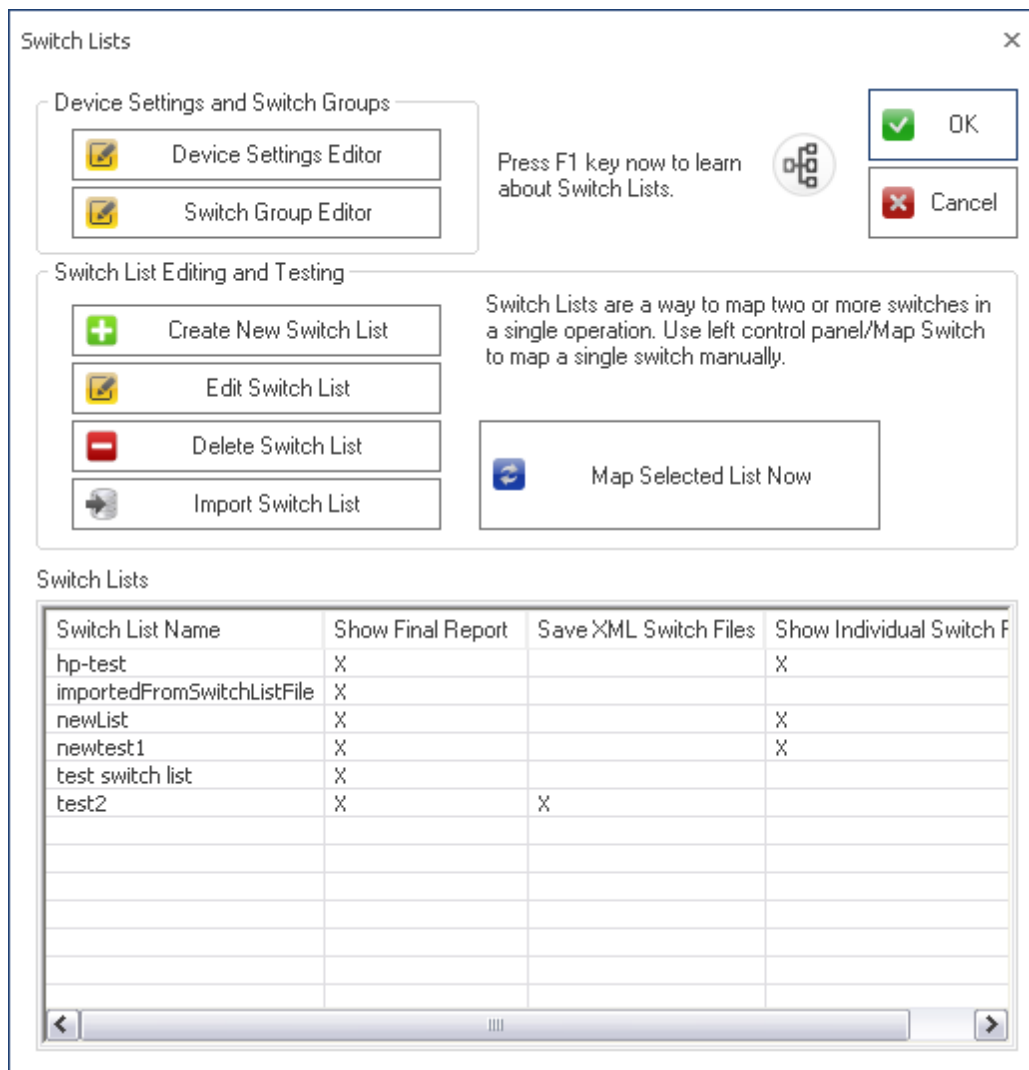
Save Switch List results as XML files after each switch mapping - this option saves an XML file to your hard drive at the conclusion of each switch mapping. Filename is formatted as switch-dotted ip address-timestamp.xml

Show individual Switch Reports in web browser during list execution - this option shows the switch mapping analysis in your web browser as each switch mapping is completed.



Testing the Switch List

- ✓ Select and highlight a switch list, then press **Map Selected List Now**.



▣ Reviewing the results of Switch List mappings

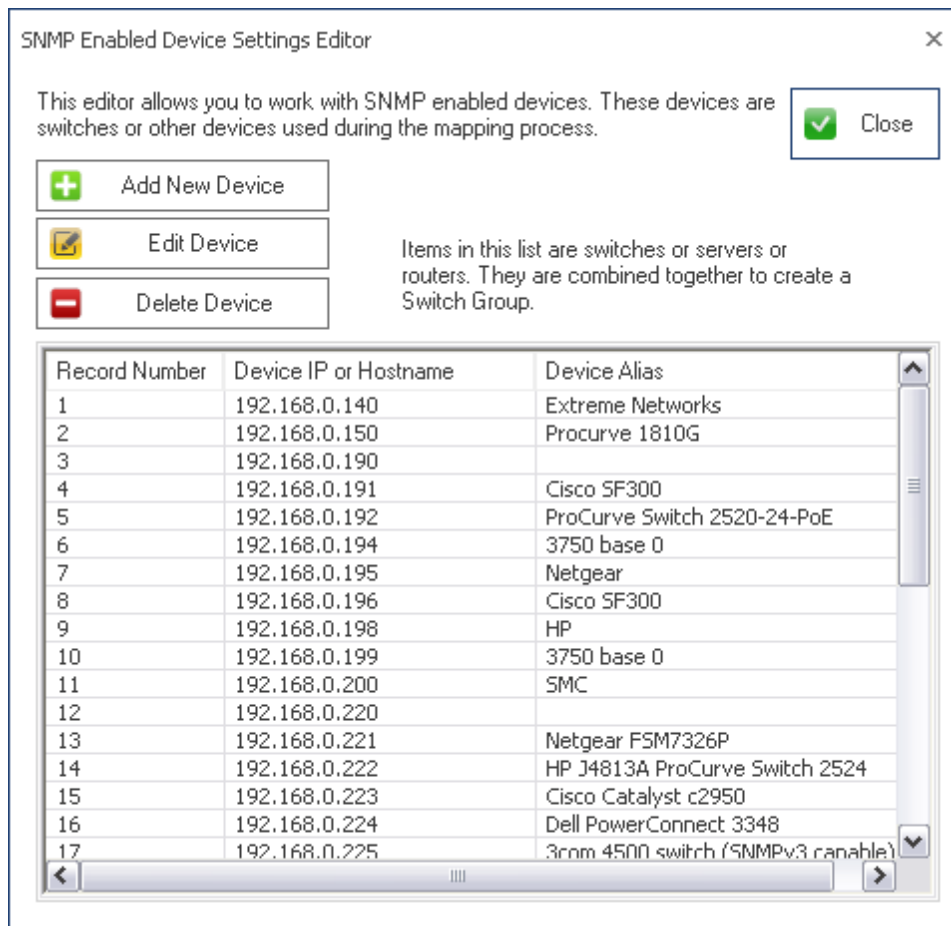
All mappings, whether through Switch Lists or single switch mappings done manually, have their results saved to the History Database. If you have chosen to display reports or save XML files, you can review those results in your web browser or by importing the XML files into your favorite spreadsheet.

From the Left Control Panel, press **Review History**.

4.4.8.2 Device Settings Editor (device level)

- ✓ On the Left Control Panel, press **Switch Lists**.
- ✓ Press **Device Settings Editor**. You will be viewing the SNMP Enabled Device Settings Editor.
- ✓ Press **Add New Device**. If editing an existing device, double-click on it or select it and press **Edit Device**.

- ✓ Edit the [Device Specific Settings](#) - ie. SNMP settings for the device. Pay careful attention to the **Device Interrogation Cycle Time** if you are defining a server/router because it tells the Switch List engine to avoid contacting the device for a time period if the device appears more than once in the Switch List. Also be sure to consider the **Arp Table Retrieval Limit** because it controls how many Arp table records are downloaded from the device. A large number will take a long time. Press OK when complete.
- ✓ When done editing devices, press Close.

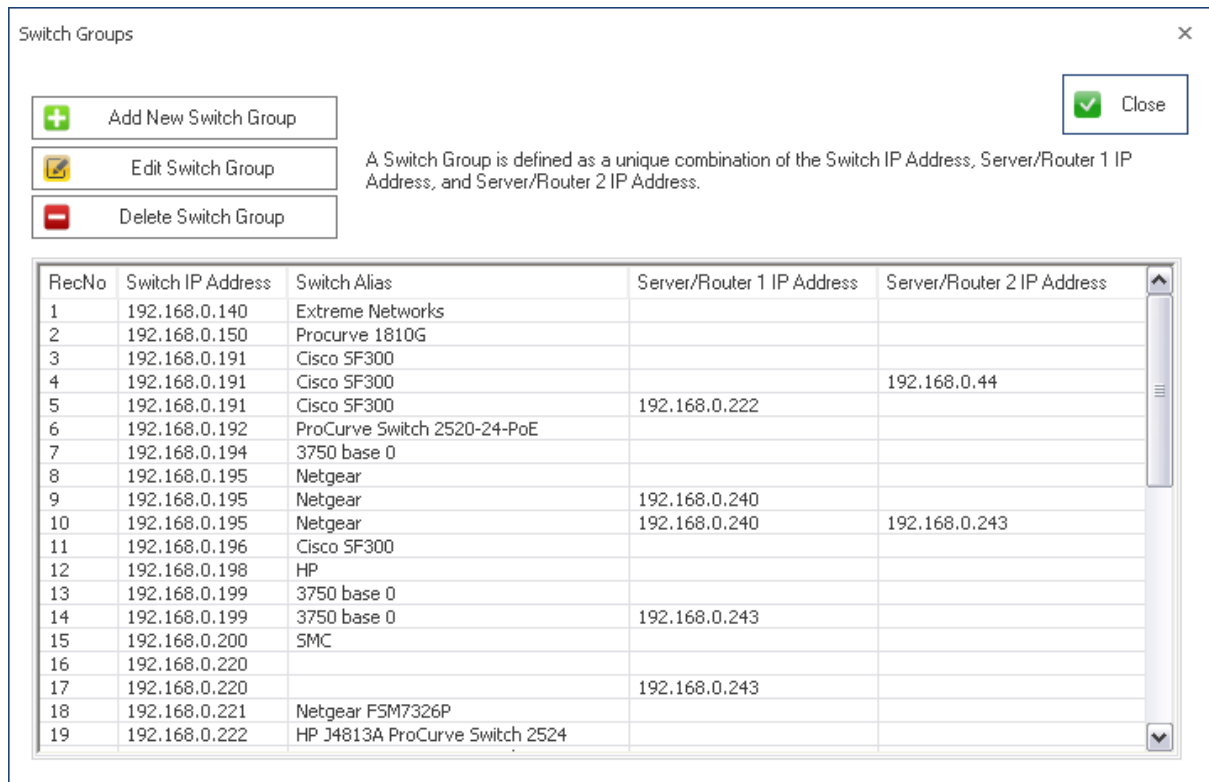


4.4.8.3 Switch Groups (mid level)

A Switch Group is a grouping or set of up to three (3) devices including the switch. The Server/Router 1 or 2 devices are used for reporting ARP tables as seen by the device. SNMP is used to contact these other two devices.

Note: a Switch Group was previously called Switch Configuration, but this was changed to avoid confusion with 'config' as defined by Cisco.

- ✓ On the Left Control Panel, press **Switch Lists**.
- ✓ Press **Switch Group Editor**.



4.4.8.4 Editing a Switch Group (mid level)

- ✓ From the [Switch Group Editor](#) found by pressing [Switch Lists](#) on the [left control panel](#).
- ✓ Press **Add New Group**. If editing an existing switch group, double-click on it or select it and press **Edit Switch Group**.
- ✓ Press **Select Switch** and find the switch in the list of SNMP enabled devices. You may also press **Select Device** to find a device that will have direct information (ARP table) about the network segment connected to the switch. Choose the other settings as required.
- ✓ When done editing the Switch Group, press OK.
- ✓ You may also access the [Ping Sweep List Editor](#) for the selected switch from here.

Edit Switch Group

A Switch Group is defined as a unique combination of the Switch IP Address, Server/Router 1 IP Address, and Server/Router 2 IP Address.

Switch IP Address: 192.168.0.140 [Select Switch] [Ping Sweep List Editor]

Server/Router 1 IP Address: [Select Device] [Remove] Query Switch Arp Table

Server/Router 2 IP Address: [Select Device] [Remove] Query Local Arp Table

Resolve IPs to Hostnames

Enable Ping Sweep

Custom Interface Description Column OID. This OID must be numeric and indexed by ifIndex: .1.3.6.1.2.1.2.2.1.2

Custom OID Presets:

- IEEE8021-PAE-MIB::dot1xAuthAuthControlledPortControl
- CISCO-STACK-MIB::portName

MAC Address Limit Per Port: 16

Unlimited MAC Address Count Per Port

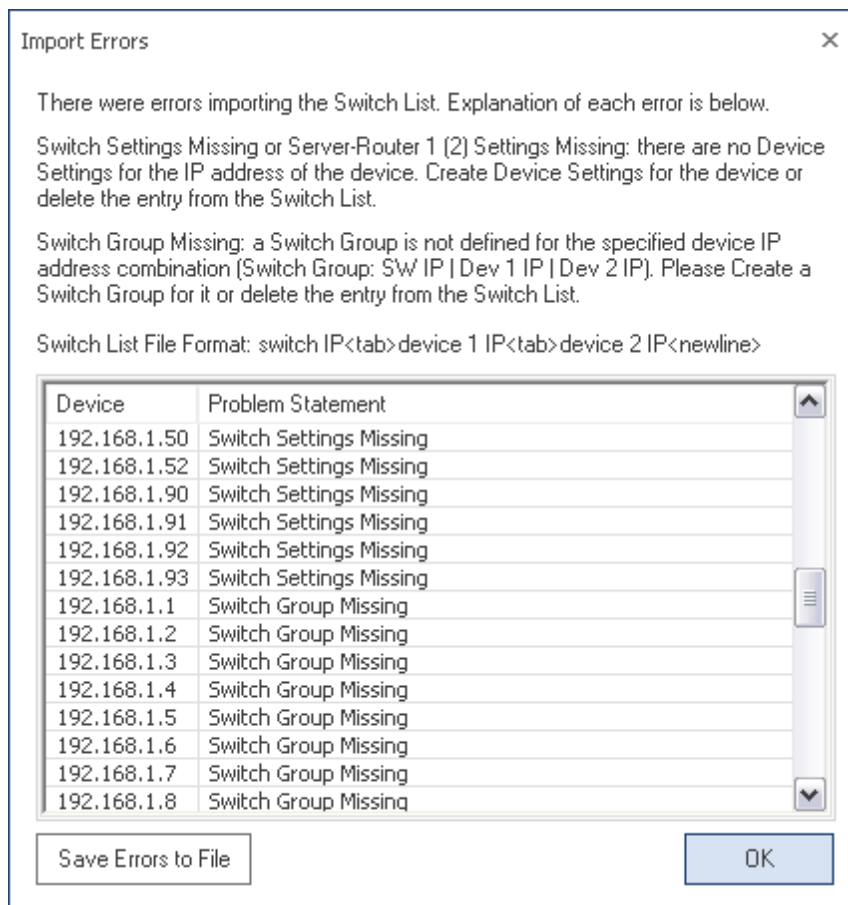
[OK] [Cancel]

4.4.8.5 Switch List Editor (list level)

- ✓ On the Left Control Panel, press [Switch Lists](#).
- ✓ Press **Create New Switch List**. If editing an existing list, double-click on it or select it and press **Edit Switch List**.
- ✓ Enter a Switch List Name.
- ✓ Press **Add New Group** and select a Switch Group from the list. Add as many Switch Groups as you will need. Each is mapped in the order viewed in the list, so you can press Move Up/Down to change the order. If your Switch List name has already been used, you will be told and you will have to change it. Press OK to close.

About checkbox options:

- Show Final Report after complete list execution** - this shows a summary report in your web browser after the switch list has been completed.
- Save Switch List results as XML files after each switch mapping** - this option saves an XML file to your hard drive at the conclusion of each switch mapping. Filename is formatted as switch-dotted ip address-timestamp.xml
- Show individual Switch Reports in web browser during list execution** - this option shows the switch mapping analysis in your web browser as each switch mapping is completed.



To create your Switch List to import, open Notepad or equivalent and enter your list of Switch Groups. Each switch group should be on a line by itself as follows:
 switchIP<tab char>device1ip<tab char>device2ip<newline>

4.4.9 Review History (see previous mappings)

This window lets you Review and Search Historical Switch Mapping Results that are saved automatically to the history database every time a switch is mapped. The history database is called history.db3. It is SQLite and it is located here:
 %AppData%\NWPS\ManagedSwitchPortMapper

Press the **Review History** button on the left control panel to open this window.

☐ Controls for Reviewing History

On the left side there is a selection for viewing **Switch List Mappings** or **Manual Switch Mappings**. Changing this selection also changes the list of mappings found below it.

Switch Lists or Manual Mappings

This is a list that shows either the Switch List name and start time or the Switch IP

Address and start time. Click within the list to show the **Available Results**. If you are viewing Switch Lists, you will see several switch mappings in the Available Results list. If you are viewing Manual Mappings, only one switch will appear in the Available Results list.

Available Results

Double-clicking or single clicking on an item in the list then pressing **View Selected Results** closes the Review History window and loads the mapping from the history database back into the main results grid. You can then review the actual results, right click and see Properties and view the intermediate analysis in your web browser. The switch IP address will appear on the top titlebar of the program and the switch settings will be loaded into the left control panel.

▣ **Deleting Results from the History Database**

If your database gets very large (you can see the Current History Database Size to make that determination - some customers have let it get to several gigabytes), you can use the selections below to reduce the size.

Delete Selected Results - this button deletes all data associated with whatever is currently selected in the Switch Lists or Manual Mappings list. If you are deleting a Manual Switch Mapping, only the one associated mapping is deleted. If you deleting the results of a Switch List mapping, all individual switch mapping for that time the list was active are deleted. This means if your switch list has 10 separate switch mappings for that switch list cycle, all ten will be deleted.

Delete All Results - This cleans out the History Database. All mappings are removed. Be careful with this option. The database is automatically compacted after this.

Delete Results by Date - this opens a window allowing you to select a number of predefined days to delete the older data beyond. The database is automatically compacted after this operation.

Compact Database - use this button to compact or compress the database to make searching more efficient.

▣ **Searching the History Database**

Searching the History Database is fairly simple. First you select the field corresponding to one of the results columns that you want to search. Then you enter a string to search for. The Begins with, Ends with and Contains options make the search more broad, then you press Search. If there is a match, the results are shown in the Available Results list. You will see the Switch IP Address, Start Time, ifName (cell) that it was found in and the String Found. In the example below we searched for 25 with the Contains option selected:

| Switch IP Address | Start Time | ifName | String Found |
|-------------------|-------------------|-----------------|---------------|
| 192.168.0.225 | 11/03/12 14:06:25 | NULL0 | 192.168.0.225 |
| 192.168.0.225 | 11/03/12 14:06:25 | InLoopBack0 | 192.168.0.225 |
| 192.168.0.225 | 11/03/12 14:06:25 | Vlan-interface1 | 192.168.0.225 |
| 192.168.0.225 | 11/03/12 14:06:25 | Aux1/0/0 | 192.168.0.225 |
| 192.168.0.225 | 11/03/12 14:06:25 | Ethernet1/0/1 | 192.168.0.225 |
| 192.168.0.225 | 11/03/12 14:06:25 | Ethernet1/0/2 | 192.168.0.225 |
| 192.168.0.225 | 11/03/12 14:06:25 | Ethernet1/0/3 | 192.168.0.225 |
| 192.168.0.225 | 11/03/12 14:06:25 | Ethernet1/0/4 | 192.168.0.225 |
| 192.168.0.225 | 11/03/12 14:06:25 | Ethernet1/0/5 | 192.168.0.225 |
| 192.168.0.225 | 11/03/12 14:06:25 | Ethernet1/0/6 | 192.168.0.225 |
| 192.168.0.225 | 11/03/12 14:06:25 | Ethernet1/0/7 | 192.168.0.225 |

In this example we searched for 25 in the MAC Address field:

| Switch IP Address | Start Time | ifName | String Found |
|-------------------|-------------------|--------|-------------------|
| 192.168.0.240 | 11/02/12 12:09:47 | e1 | 00:25:61:DE:94:40 |
| 192.168.0.240 | 11/02/12 12:09:47 | e1 | 00:25:61:DE:94:74 |
| 192.168.0.222 | 11/02/12 12:10:11 | 9 | 00:25:61:DE:94:40 |
| 192.168.0.222 | 11/02/12 12:10:11 | 9 | 00:25:61:DE:94:6A |
| 192.168.0.240 | 11/02/12 12:24:52 | e1 | 00:25:61:DE:94:40 |
| 192.168.0.240 | 11/02/12 12:24:52 | e1 | 00:25:61:DE:94:74 |
| 192.168.0.222 | 11/02/12 12:25:15 | 9 | 00:25:61:DE:94:40 |
| 192.168.0.222 | 11/02/12 12:25:15 | 9 | 00:25:61:DE:94:6A |
| 192.168.0.240 | 11/02/12 12:28:24 | e1 | 00:25:61:DE:94:40 |
| 192.168.0.240 | 11/02/12 12:28:24 | e1 | 00:25:61:DE:94:74 |
| 192.168.0.222 | 11/02/12 12:28:47 | 9 | 00:25:61:DE:94:40 |

You can then double-click on the results list to load the full mapping into the main results grid in the main window.

4.4.10 Ping Sweep List Editor

Major change introduced in version 2.30: Each Switch can have a different Ping Sweep set of ranges - previous versions only had one Ping Sweep table and it was used regardless of the switch being queried. **Important:** If you are on a large network where subnets exceed 254 devices, we recommend keeping the ranges small to only include known used IPs.

The Ping Sweep List Editor is used to create a list of IPv4 addresses or IP address ranges that will be "pinged" using ARP or ICMP echo request packets if the Enable Ping Sweep checkbox is checked. These packets are sent to the IPv4 addresses and in the process they populate the ARP table of your local computer and possibly any switches or routers between your computer and the targets. Since ARP is not routed, your computer will only benefit from pinging IP addresses on your local subnet or network segment. If you ping IP addresses outside your segment, ping packets are sent through the default gateway to other devices such as routers. If you are communicating with one of those routers using SNMP, then you may benefit by adding to the ARP table using the off-local-segment IP addresses you pinged.

Ping Sweep may also force updates to the switch's bridge tables, so if an device has not communicated through the switch for a long time, it may update the switch with that device's MAC address and connection. This can be effective even if the device is not on your local network segment.

Ping Sweep is done prior to the mapping of the switch. Ping Sweep is active if:

1. IP ranges for the switch are defined.
2. The Enable Ping Sweep box in the left panel is checked. This state is saved as part of a Switch Group.

New in v2.30: Responding IPs are queried for their MAC addresses using NetBIOS over TCP/IP. Windows and Apple Mac computers will often respond if they are not protected by a firewall.

We do not recommend trying to ping large ranges of IPs - keep the ranges small, 512 IPs or so. If you are on a 10.x.x.x network with a subnet mask like 255.255.0.0, please edit the range or turn off Ping Sweep by unchecking the box in the left control panel.

You can access the editor from the left pane control panel or from the menu (Settings and Tools). **To activate and use Ping Sweep to the fullest extent**, please check **Enable Ping Sweep** and **Query Local ARP Table**.

Using the Editor

When you start the editor, the Start and End IPv4 Address fields are preset with the range of your local subnet - but that is only a starting point and only valid if the switch you are working with handles IPs on your subnet.

Adding a Range: This is done by pressing the Add IP Range to Ping Sweep List button after starting the editor. If you want to put a single IP address in the list, make the Start and End IP's the same, then put it in the list. You can also press the Copy Start IP to End IP button to quickly make them the same. Several ranges may be added and please keep the total number of IPs pinged small in order to not degrade performance.

Timeout: this is how long the Ping Sweep engine will wait for a response from a target before either quitting contact with that IP or doing a retry. Default = 1000 (1 second).

Retries: this is how many times to resend a Ping packet when an IP fails to respond within the Timeout defined time. Default = 1.

Removing IPs from the List. You can select a single row and delete it using the Delete Selected Row button or you can delete all the ranges from the list.

Default Range. If you try to save an empty list, you will be prompted and asked if you want to save the range of your current subnet. We suggest you answer YES only if the switch you are querying handles your subnet, otherwise put in ranges that the switch does handle.

IMPORTANT: if your computer is part of a class C masked network, the range will be 254 hosts. However, your network might be significantly different and have a much larger range. Be sure to check the range. If it is too large it will take a long time for

Ping Sweep to complete - it's typically 5 seconds per 254 hosts. If you have a much larger network that you are part of, you may see 65,000 hosts in your default range. A warning dialog will appear if any range in the list is greater than 1024 hosts and you can choose to skip Ping Sweep at that time. We do not recommend using Ping Sweep over large ranges such as might be found in a 10.x.x.x subnet - divide it up into smaller ranges that you know are active.

📄 Screenshot

Ping Sweep List Editor

Ping Sweep helps prefill device ARP tables and can retrieve MAC/IP addresses from certain computers. Please Enable Ping Sweep and Query Local ARP Table on the main controls.

Start IPv4 Address: 192 . 168 . 0 . 1

End IPv4 Address: 192 . 168 . 0 . 254

Apply to Switch IP Address: 192.168.0.195

Define timeout and retries to use during ping. (1000ms = 1 second)

Timeout (ms): 1000

Retries: 1

Enter IP ranges handled by the switch. Limit the range to known used IPs. Large ranges not advisable especially in /22 through /8 networks.

Close

Defaults

Delete Selected Row

Delete All Rows

| RecNo | StartIP | EndIP | PingTimeout | PingRetries | Host Count | Comment |
|-------|---------------|---------------|-------------|-------------|------------|---------|
| 1 | 192.168.0.1 | 192.168.0.25 | 1000 | 1 | 25 | OK |
| 2 | 192.168.0.200 | 192.168.0.254 | 1000 | 1 | 55 | OK |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Definitions:
 Timeout - how long to wait for the Ping Packet reply to come back.
 Retries - how many times to resend a Ping Packet if a response fails to come back.

4.4.11 Database Maintenance Button

Activates the Database Maintenance Editor. [Please visit this page for further information.](#)

4.4.12 Database Protection

Database Protection means that the community name fields and the password fields for SNMPv3 are not viewable through this program or any program to edit SQLite data.

If you turn it on, you will be prompted for the password then you start the program. You cannot use the program if you do not provide it. **If you lose the password, we cannot recover it.**

In the [menus](#) you will find these options under Settings and Tools

Enable Database Protection - encrypts certain fields in the database like community name. If you activate this option, you will be asked for the password you selected as the program starts. If you cannot provide it, the program will exit. Do not lose your password.
Disable Database Protection - makes plaintext certain fields in the database like community name.

Control Panel Access

These controls are duplicated using this image on the left control panel:



Command Line Effects

If you enable database protection and start the program from the command line, you must supply the password using the command line option `-pw password`

4.5 Switch Mapping Results (column explanations)

After information is retrieved from the [Managed Switch](#), it is presented in the grid in the right hand panel. Once the data gathering cycle is complete, you can sort by clicking on column headers. There are also several right click options available and [they are documented here](#). The same right click options are duplicated in the [menu bar](#).

☐ The First Ten Default Columns

Interface Description (ifDescr) is given to us by the switch. This column can optionally be changed to reflect any OID you require as long as it is indexed in the same order as `RFC1213-MIB::ifIndex`. Please see [Global Settings](#) for more information.

Interface Name is given to us by the switch.

Interface Description (ifAlias) - The ifAlias column is often the port name information saved in a switch by the user. It is often a customized description.

Interface Type describes the type of the interface, usually it will be ethernet, but other types can be shown depending on your switch.

VLAN - this is the virtual LAN assignment of the port. Some switches support multiple VLANs per physical port and these are reported as a VLAN number per MAC address row within the cell. [Please see this VLAN discussion](#). VLAN notation is often simply numeric, but for switches that support administratively assigned VLAN identification, the string will appear followed by the VLAN number used internally by the switch in parentheses - ex. VLAN1 (1).

Status is reported to us by the switch. Up (active or connected) is shown with a green background and Down (inactive or disconnected) is shown with a red background.

Speed is in megabits per second (Mbps) or gigabits per second (Gbps).

Mode - FDx is Full Duplex, HDx is Half Duplex (yellow) and other types vary according to switch MIB implementation (shown in red). "Not Available" may appear if your switch does not support the most common methods of reporting duplex mode via SNMP.

MAC Address is the [MAC address\(es\)](#) of the interfaces attached to the port. If more than one interface is attached to the port because of another switch or a hub, each interface will be shown on a separate line.

IP Address is shown based upon the information found in [ARP table\(s\)](#). You must have one or more methods for obtaining ARP table information enabled. See Server/Router 1/2 settings and checkboxes controlling switch and local system ARP queries [on this page](#). **CELL BACKGROUND COLOR KEY:** If a cell background is colored yellow, then there is a router among the IP addresses in the cell. If a cell background is colored light blue, then there is a switch among the IP addresses in the cell. If a cell background color is light green, there is both a known router and a switch among the IP addresses in the cell.

Hostname assigned to IP column is populated if an IP address is found for the MAC address and if the Resolve IPs to Hostnames checkbox is enabled. We use a function which uses the operating system resolver to obtain a hostname. Hostnames may be fully qualified from DNS or in the case of Windows computers, they may be Windows computer names.

| Interface Description (ifDescr) | Interface Name | Interface Description (ifAlias) | Interface Type | VLAN | Status | Speed | Mode | MAC Address | IP Address | Hostname assigned to IP |
|---------------------------------|----------------|---------------------------------|-----------------|------|-----------------|----------|---------|--------------|------------|-------------------------|
| Ethernet Interface | e1 | | Ethernet(6) | 1 | Up | 100 Mbps | FDx | 00:0C:F1:6F: | 192.168.0. | www.example.com |
| | | | | 1 | ? | | | | | |
| | | | | 1 | ? | | | | | |
| | | | | 1 | ? | | | | | |
| | | | | 1 | ? | | | | | |
| | | | | 1 | ? | | | | | |
| Ethernet Interface | e2 | | Ethernet(6) | 1 | Up | 100 Mbps | FDx | 00:14:38:97: | 192.168.0. | NPI97 |
| Ethernet Interface | e3 | | Ethernet(6) | 1 | Up | 100 Mbps | FDx | 00:30:4F:24: | 192.168.0. | ? |
| Ethernet Interface | e4 | | Ethernet(6) | 1 | Up | 100 Mbps | FDx | | | |
| Ethernet Interface | e5 | | Ethernet(6) | 1 | Up | 100 Mbps | FDx | 00:02:B3:8A: | 192.168.0. | DELL |
| Ethernet Interface | e6 | | Ethernet(6) | 1 | Up | 100 Mbps | FDx | 00:30:1B:BC: | 192.168.0. | QUAD |
| | | | | 1 | ? | | | 08:00:27:02: | 192.168.0. | WIN8 |
| Ethernet Interface | e7 | | Ethernet(6) | 1 | Up | 100 Mbps | FDx | 00:0F:1F:98: | 192.168.0. | D340G |
| Ethernet Interface | e8 | | Ethernet(6) | 1 | Up | 100 Mbps | FDx | 00:13:72:76: | 192.168.0. | DEV |
| Ethernet Interface | ch1 | | Ethernet(6) | 1 | I/F Not Present | 0 Mbps | Unknown | | | |
| Ethernet Interface | ch2 | | Ethernet(6) | 1 | I/F Not Present | 0 Mbps | Unknown | | | |
| Ethernet Interface | ch3 | | Ethernet(6) | 1 | I/F Not Present | 0 Mbps | Unknown | | | |
| Ethernet Interface | ch4 | | Ethernet(6) | 1 | I/F Not Present | 0 Mbps | Unknown | | | |
| Ethernet Interface | ch5 | | Ethernet(6) | 1 | I/F Not Present | 0 Mbps | Unknown | | | |
| Ethernet Interface | ch6 | | Ethernet(6) | 1 | I/F Not Present | 0 Mbps | Unknown | | | |
| Ethernet Interface | ch7 | | Ethernet(6) | 1 | I/F Not Present | 0 Mbps | Unknown | | | |
| Ethernet Interface | ch8 | | Ethernet(6) | 1 | I/F Not Present | 0 Mbps | Unknown | | | |
| Tunnel Interface | tunnel1 | | Tunnel(131) | N/A | I/F Not Present | 0 Mbps | Unknown | | | |
| vlan | 1 | | propVirtual(53) | N/A | Up | 0 Mbps | | | | |

The Next Five Default Columns

Interface Manufacturer column is a database lookup based upon the MAC address.

LLDP - displays Link Layer Discovery Protocol information about devices like switches and routers connected to a switch port. In the image below, LLDP is showing a Windows 8 32 bit OS running on a VirtualBox virtual machine as a connection to that switch port.

CDP - displays Cisco® Discovery Protocol information about devices like switches and routers connected to a switch port.

Last Change Time shows the elapsed time since the interface entered its current operational state, ie. went from status Down to Up or vice versa. If the current state was entered prior to the last re-initialization of the local network management subsystem, then this object contains 'Indeterminate'.

ifIndex - used internally by the software to identify ports when Enable/Disable Port is invoked. (RFC1213-MIB::ifIndex)

| Interface Manufacturer | LLDP | CDP | Last Change Time | ifIndex |
|---|---|-----|---------------------------------|---------|
| Intel Corporation Cisco Cisco 3Com Ltd 3Com Ltd Actiontec Electronics, Inc. ProCurve Networking by HP | N/A | N/A | 33 days, 01 hrs, 38 min, 18 sec | 1 |
| Hewlett-Packard Company | N/A | N/A | 16 days, 05 hrs, 33 min, 40 sec | 2 |
| PLANET Technology Corporation | N/A | N/A | 33 days, 01 hrs, 38 min, 18 sec | 3 |
| | N/A | N/A | 4 days, 16 hrs, 19 min, 06 sec | 4 |
| Intel Corporation | N/A | N/A | 0 days, 07 hrs, 51 min, 38 sec | 5 |
| SHUTTLE, INC. CADMUS COMPUTER SYSTEMS | Remote Connected Device Information MAC Address: 08:00:27:02: [REDACTED] IPv4 Address: 192.168.0. [REDACTED] I/F MAC Address: 08:00:27:02: [REDACTED] Capabilities: Other Port Desc: System Name: System Desc: | N/A | 0 days, 01 hrs, 19 min, 25 sec | 6 |
| W/W PCBA Test | N/A | N/A | 0 days, 07 hrs, 51 min, 49 sec | 7 |
| Dell Inc. | N/A | N/A | 0 days, 07 hrs, 51 min, 30 sec | 8 |
| | N/A | N/A | Indeterminate | 1,000 |
| | N/A | N/A | Indeterminate | 1,001 |
| | N/A | N/A | Indeterminate | 1,002 |
| | N/A | N/A | Indeterminate | 1,003 |
| | N/A | N/A | Indeterminate | 1,004 |
| | N/A | N/A | Indeterminate | 1,005 |
| | N/A | N/A | Indeterminate | 1,006 |
| | N/A | N/A | Indeterminate | 1,007 |
| | N/A | N/A | Indeterminate | 3,000 |
| | N/A | N/A | Indeterminate | 100,000 |

☐ **Additional Columns (default state is NOT visible)**

Voice VLAN - this reports the Voice VLAN assignment for a port. Currently only supports Cisco switches.

Interface Description (Custom) - This is not shown because it is up to the user as to the OID to enter in Global Settings. If you use this, the OID you enter MUST be indexed by ifIndex.

Spanning Tree Protocol State - This column shows the action the port takes upon receipt of a frame. In the example below the top cell shows root and topology information because this switch is the designated root of the tree. If the root were another switch, that extra information would appear on the port connected to the root. Note that the Time Since Topology Change is in days:hours:minutes:seconds.hundredths. Not all switches update the time or the number of topology changes.

In Bytes is the the total number of octets received on the interface, including framing characters.

Out Bytes is the total number of octets transmitted out of the interface, including framing characters.

In Bandwidth Utilization - this column is updated when you right click and select **Update In/Out Port Bandwidth Columns**. The time period between the last In

Bytes retrieval and the current retrieval are used to calculate the bandwidth. If you exit the program and come back later, the previous values for last In Bytes are compare with the current values over the time period and used to calculate the bandwidth over a potentially long period of time.

Out Bandwidth Utilization - this column is updated when you right click and select **Update In/Out Port Bandwidth Columns**. The time period between the last Out Bytes retrieval and the current retrieval are used to calculate the bandwidth. If you exit the program and come back later, the previous values for last Out Bytes are compare with the current values over the time period and used to calculate the bandwidth over a potentially long period of time.

CRC Errors - OLD-CISCO-MIB - "Number of input packets which had cyclic redundancy checksum errors."

Frame Errors - OLD-CISCO-MIB - "Number of input packet which were misaligned."

Overrun Errors - OLD-CISCO-MIB - "Count of input which arrived too quickly for the to hardware receive."

Ignored Errors - OLD-CISCO-MIB - "Number of input packets which were simply ignored by this interface."

Abort Errors - OLD-CISCO-MIB - "Number of input packets which were aborted."

Collision Errors - OLD-CISCO-MIB - "Number of input packets which were aborted."

Input Queue Drops - OLD-CISCO-MIB - "The number of packets dropped because the input queue was full."

Dropped Packets - RMON-MIB - "The total number of events in which packets were dropped by the probe due to lack of resources. Note that this number is not necessarily the number of packets dropped; it is just the number of times this condition has been detected."

CRC Errors - RMON-MIB - "The total number of packets received that had a length (excluding framing bits, but including FCS octets) of between 64 and 1518 octets, inclusive, but had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error)."

Undersized Packets - RMON-MIB - "The total number of packets received that were less than 64 octets long (excluding framing bits, but including FCS octets) and were otherwise well formed."

Oversized Packets - RMON-MIB - "The total number of packets received that were less than 64 octets long (excluding framing bits, but including FCS octets) and were otherwise well formed."

Fragmented Packets - RMON-MIB - "The total number of packets received that were less than 64 octets in length (excluding framing bits but including FCS octets) and had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error). Note that it is entirely normal for etherStatsFragments to increment. This is because it counts both runts (which are normal occurrences due to collisions) and noise hits."

Jabber Packets - RMON-MIB - "The total number of packets received that were longer than 1518 octets (excluding framing bits, but including FCS octets), and had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error). Note that this definition of jabber is different than the definition in IEEE-802.3 section 8.2.1.5 (10BASE5) and section 10.3.1.4 (10BASE2). These documents define jabber as the condition where any packet exceeds 20 ms. The allowed range to detect jabber is between 20 ms and 150 ms."

Collision Errors - RMON-MIB - "The best estimate of the total number of collisions on this Ethernet segment."

4.6 Mapping Results Right Click Menu

This topic explains the items in the right click menu. Some selections are duplicated elsewhere in the [menu bar](#) and the [left control panel](#). See also [Right Panel Switch Mapping Results](#).

| |
|---|
| Refresh (map ports again) |
| Refresh Status Column |
| Lock Leftmost Column |
| Autosize Selected Column Width |
| Autosize All Column Widths |
| Set Selected Cell Background Color to White |
| Set Column Background Color to White |
| Set All Cells Background Color to White |
| Display Cell Background Color Coding Key |
| Find Text |
| Replace Text |
| ✓ Find In All Columns |
| Copy Selected Single Cell Text To Clipboard |
| Copy Selected Complete Row Cell Text To Clipboard |
| Copy All Results Cell Text To Clipboard |
| Export XML (Spreadsheet Schema) or Save Results (tab delimited) |
| Print |
| Print Preview |
| Print Settings |
| Print Page Options |
| Enable Selected Port |
| Disable Selected Port |
| Use Your Web Browser To Contact The Switch |
| Telnet To The Switch |
| SSH To The Switch |
| Connect to the Serial Port (Console) on the Switch |
| Show Switch Mapping Analysis in Web Browser |
| Properties Of This Switch |

Refresh (map ports again)- clears the display and queries the switch for new information.

Refresh Status Column - queries the switch for current up/down status of each port.

Update In/Out Port Bandwidth Utilization Columns - queries the switch for current bytes in/out and calculates the bandwidth utilization based on information saved from the previous calculation. The time period used for the bandwidth calculation is shown on the bottom status bar of the window. *This option only appears* if the In/Out Bandwidth Utilization columns are visible.

Lock Leftmost Column - if checked, the leftmost column in the grid is locked and does not move as you scroll right.

Autosize Selected Column Width - automatically resizes the width of the column where you clicked the mouse to match the widest portion either within a cell in the column or the header.

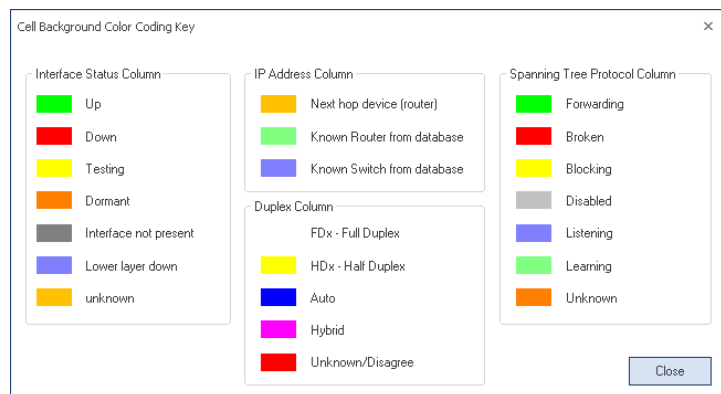
Autosize All Column Widths - automatically resizes the width of all the columns to match the widest portion either within a cell in the column or the header.

Set Selected Cell Background Color to White - if the background color is something other than white, it is changed to white.

Set Column Background Color to White - changes the background color of all cells in a column to white.

Set All Cells Background Color to White - changes the background color of all the cells in the results grid to white.

Display Cell Background Color Coding Key - shows this window explaining the color coding.



Find/Replace Text - find or replace text in the grid.

Find In All Columns - controls which columns to search in. Default is checked.

Copy Selected Cell Text To Clipboard

Export XML (Spreadsheet Schema) or Save Results

(tab delimited) allows you to save the results in an XML file compatible with the Microsoft Excel XML

Schema or as a tabbed ASCII text file. [See this topic for an example.](#)

Print/Print Preview/Print Setup are used to create printed output.

Print Page Options - allows you to change the margins in the printed results.

Enable/Disable Selected Port are used to turn on or off a specific port. Be careful not to turn off the port you are using to talk with the switch. We check for that, but we cannot guarantee we are right. You will need to [set the write privileges](#) for this to work. The program immediately reports the change, then checks the switch again a few seconds later to be sure that it remained in the state you selected. Requires the ifIndex column to be visible for correct operation -- if it is not visible, please use [this editor](#) to make it visible.

Use Your Web Browser To Contact The Switch -

opens your web browser and makes contact with your switch if it is web enabled.

Telnet To The Switch - opens a telnet program and contacts the switch using telnet. The Telnet program is located through the registry or you can set it manually in [Global Settings](#). You may have to install Telnet if you are using Windows Vista or later. [Please see installing Telnet on Windows 8, 7, or Vista.](#) You can alternatively use PuTTY for Telnet, SSH and Serial Port (console) connections.

SSH To The Switch - launches an external SSH

program to contact the switch. The SSH program is located through the registry or you can set it manually in [Global Settings](#). You can alternatively use PuTTY for Telnet, SSH and Serial Port (console) connections.

Connect to the Serial Port (Console) on the Switch

- launches an external SSH program to contact the switch. The SSH program is located through the registry or you can set it manually in [Global Settings](#). You can alternatively use PuTTY for Telnet, SSH and Serial Port (console) connections.

Show Switch Mapping Analysis in Web Browser -

this shows the switch mapping analysis report in your web browser. The same report as appears at the end of a switch mapping action.

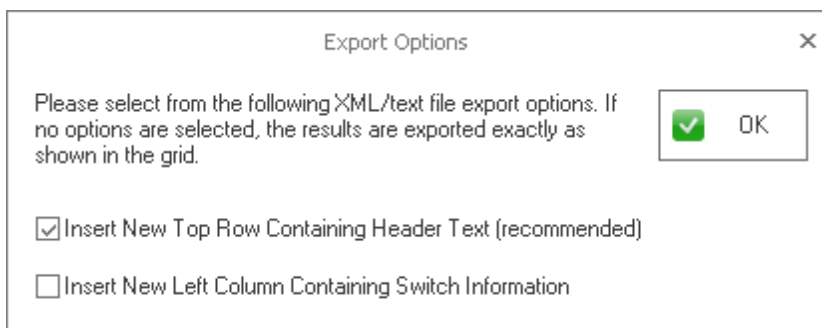
Properties Of This Switch - this shows various parameters about the switch including description, name, contact and location. Certain brands of switches will also be queried for more advanced information like model, serial, software version, and ROM version. [More information is here.](#)

4.7 Exporting Results as XML or Text

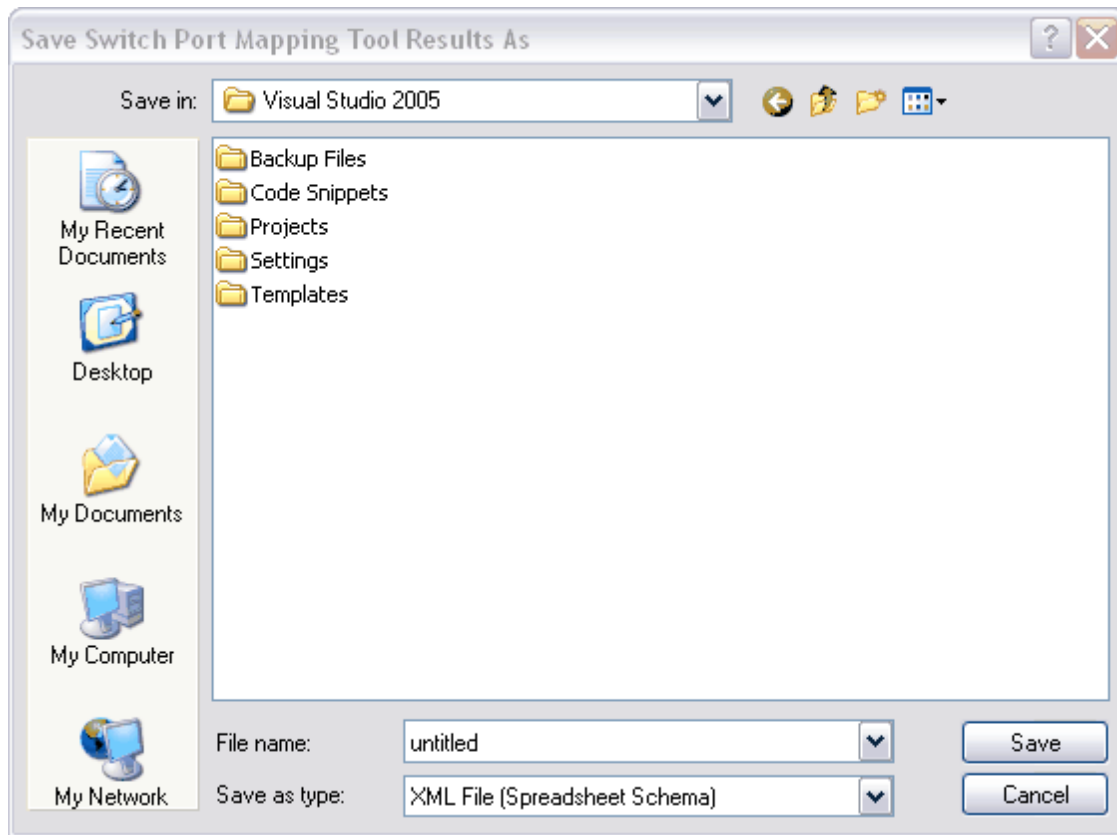
Once you have completed a switch mapping, you may want to save the results as an XML file compatible with the Microsoft Office Excel® schema (also compatible with OpenOffice 3, open as Microsoft Excel 2003 XML) or as a tab delimited text.

Procedure:

1. Select **File/Export XML(Spreadsheet Schema) or Save Text (tab delimited)** or press the disk icon on the toolbar or **right click** in the results grid and select **Export XML (Spreadsheet Schema) or Save Text (tab delimited)**.
2. The **Export Options** dialog appears as shown below. Make your selections and press OK to continue.



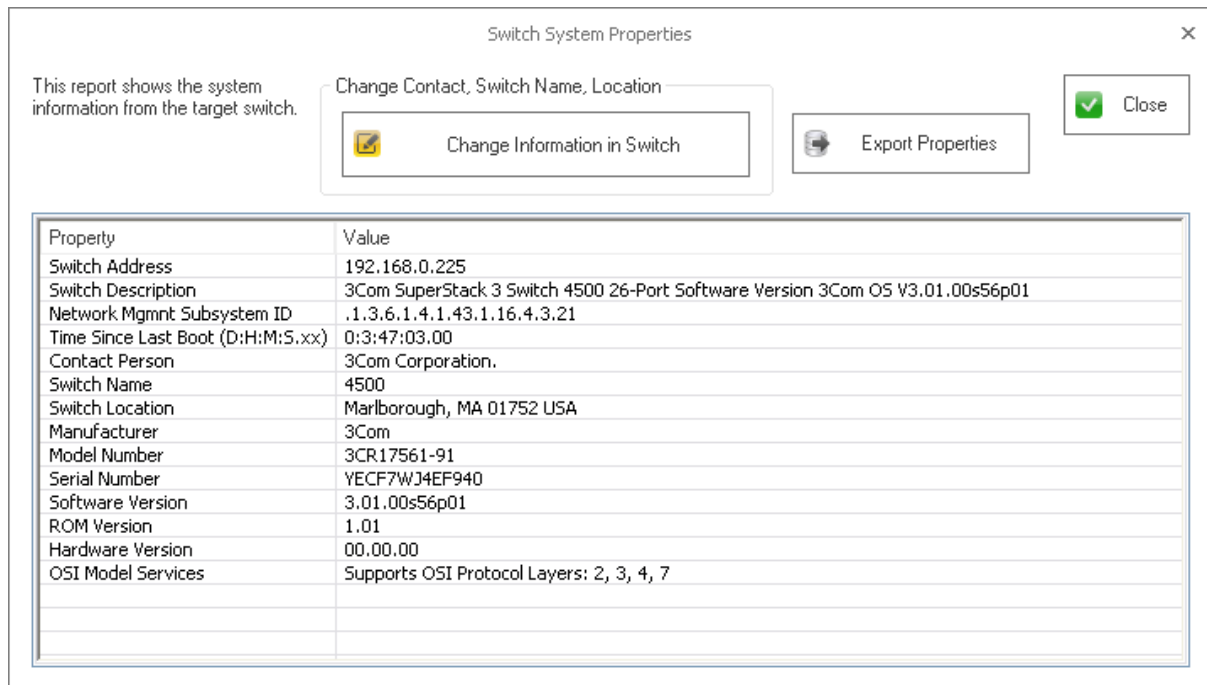
3. The **Save Switch Port Mapping Tool Results As** dialog appears giving you options as to where to save the file and the file type. To select an XML or tabbed ASCII text file, choose your preferred type from the 'Save as type', name the file and press Save.



4.8 Properties Of This Switch

The switch properties are shown by selecting **Settings and Tools/Properties of this Switch** from the toolbar menu or by right clicking in the results grid and selecting Properties of this Switch. These fields below may vary according to switch manufacturer.

To change the Contact, Switch Name and Location press the [Change Information in Switch](#) button.



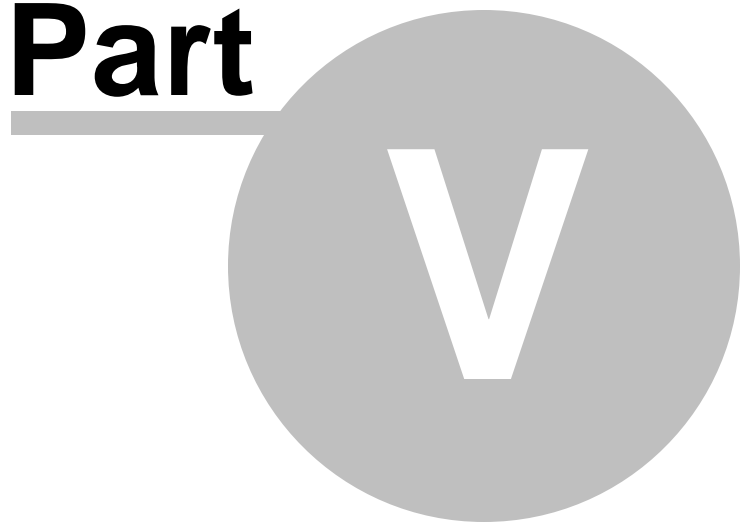
4.9 Changing Information in the Switch

When viewing the [switch properties](#) window, you can press the **Change Information in Switch** button to access this window. From here you can change the Contact Person, Switch Name and Location. You will need the [write privileges access permission](#) for the switch.



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5 Command Line Operation

5.1 Command Line Overview

Running the Managed Switch Port Mapping Tool from the Command Line is key to being able to gather switch data on a scheduled basis. A scheduler like Windows Task Scheduler can be used to start the program as needed. You can map a single switch or a list of switches from the command line. The app can save the results, then we recommend having it exit. It can also display intermediate results in the web browser as it goes along.

A procedure for creating a scheduled task on Windows 7 using Windows Task Scheduler is found here:

<http://windows.microsoft.com/en-US/windows7/schedule-a-task>

5.2 Command Line Syntax and Options

This page explains the command line options understood by the application on startup.

The default installation directory and path are:

c:\program files\nwps\ManagedSwitchPortMapper (32 bit)

c:\program files (x86)\nwps\ManagedSwitchPortMapper (64 bit)

The program executable name is: spmap.exe

File paths following command options must be enclosed in double quotes: "c:\somepath\"

▣ **Command to Debug Command Line Processing**

This command helps you debug command line input. It shows popup messages as each command line option is processed that explain what was found on the command line. It must be the very first thing on the command line following spmap.exe

Example:

```
spmap.exe -debug -maplistfile "c:\somePath\testSwitchIpList.txt"
```

It is for debugging only and should not be used for normal operation.

▣ **Command to Map a Single Switch**

The following command maps a single switch using a predefined Switch Group.

Syntax:

```
-mapconf switchIP serverOneIP serverTwoIP
```

You must define the switch group ahead of time. The switch group consists of the Switch Settings and Server One/Two Settings. Press the left panel Switch List button to create/edit the settings and create the group.

Example:

```
spmmap.exe -mapconf 192.168.1.123 192.168.1.230 192.168.1.231
```

▣ **Command to Save a Single Switch Mapping to an XML file**

The following command saves the results of a single switch mapping (mapconf) to an XML file after the mapping is complete. This command does not work with the switch list command. Please define a full path. If the full path has spaces in it, put quotes around it.

Syntax:

```
-xml d:\someDirectory\filename.xml
```

Example:

```
spmmap.exe -mapconf 192.168.1.123 192.168.1.230 192.168.1.231 -xml results.xml
```

(if no directory is specified, it saves to the last used directory or to Documents)

For Switch Lists, you control whether or not to save intermediate switch mappings to files using the Switch List Editor.

To save the individual XML files from each switch when mapping a Switch List, [please review this topic.](#)

▣ **Command to Map a Switch List**

The following command maps a predefined Switch list.

Syntax:

```
-maplist switchListName
```

Example:

```
spmmap.exe -maplist TheSwitchListName -outdir "c:\temp" -postexit
```

You must define the switch list ahead of time. The switch list consists of a set of predefined Switch Group. Press the left panel Switch List button to create/edit the settings and create the group, then create the Switch List.

To save the individual XML files from each switch when mapping a Switch List, [please review this topic.](#)

▣ **Command to Map a Switch List by Loading a Text File Containing Switch Targets**

This command tells the application to load a text file with Switch IPs (and optionally Server 1/2 IPs) and map it. In order for this to work, *you must predefine* the SNMP access credentials for the Switch and optional Servers ahead of time by either mapping the switch manually or using the Left Control Panel/Switch List Editor/Device Settings Editor. The advantage of loading the targets as a file is that you can dynamically create the text file and map different lists as needed. All mappings are saved in the History Database for later review.

Syntax:

```
-maplistfile "c:\path\theSwitchListofIPs.txt"
```

Format of switch IP text file is one switch IP per line followed by server 1 and server 2. Acceptable entries:

```
192.168.0.100
192.168.0.44 192.168.0.1
192.168.0.35 192.168.0.1 192.168.0.2
```

If a switch or server/router IP is not found in the table of SNMP access credentials, the entry is skipped. Use debug mode to see if any are skipped.

By default this mode *does not* show individual switch reports in your web browser or save intermediate switch results to XML files or show the final report in your web browser. To do show the reports or save you have to use the command line options:

```
-showreports
-savelistxml
-showfinalreport
```

Those must appear before the -maplist file command on the command line.

Examples (comments are in parenthesis):

```
spmmap.exe -maplistfile "c:\path\theSwitchListofIPs.txt" (simplest - maps list of switches and saves to history database)
```

```
spmmap.exe -showreports -savelistxml -maplistfile "c:\path\theSwitchListofIPs.txt" (shows reports and saves data to disk)
```

```
spmmap.exe -showfinalreport -maplistfile "c:\path\theSwitchListofIPs.txt" (shows only the final report)
```

▣ **Command to Specify the Output Directory for Saving XML Files during a Switch List Mapping**

The following command sets the output directory where XML files are saved. Remember, the switch list must have saving of XML files enabled from the Switch List Editor for this to work. This switch does not affect the location of saving an individual XML file during a single switch mapping command line operation.

Syntax:

```
-outdir d:\someDirectory\someSubDirectory
```

Example:

```
spmmap.exe -maplist TheSwitchListName -outdir "c:\temp" -postexit
```

▣ **Command that turns off the Post Mapping Web Browser Report**

The following command turns off the post mapping web browser report if it was set to on.

Syntax:

```
-noreport
```


Example:

```
spmapi.exe -mapconf 192.168.1.123 192.168.1.230 192.168.1.231 -noreport
```

Command that forces the program to exit after a switch mapping is complete

The following command causes the program to exit after a single switch or switch list mapping is complete. If mapping a single switch, it must be combined with `-xml` to save the results to a file before exiting.

Syntax:

```
-postexit
```

Example (single switch mapping):

```
spmapi.exe -mapconf 192.168.1.123 192.168.1.230 192.168.1.231 -postexit -xml "g:\switch123.xml"
```

Command to Suppress Display of Error Messages When a Switch Fails to Respond

The following command suppresses display of error messages when a switch fails to respond. Normally two error messages appear and the second one is displayed for 30 seconds - they both automatically close. This command is most useful when mapping switch lists where a switch might be unreachable.

Syntax:

```
-noerrormsg
```

Example (maps a Switch List, saves any XML files to c:\temp, then exits):

```
spmapi.exe -noerrormsg -maplist TheSwitchListName -outdir "c:\temp" -postexit
```

Command to enter a password for a protected database

If your database is protected, you must enter a password on the command line in order to be able to map switches.

Syntax:

```
-pw password
```

Example:

```
spmapi.exe -mapconf 192.168.1.123 192.168.1.230 192.168.1.231 -pw testpassword
```

Command to Compact/Compress the databases

The following command compacts the database. It may take awhile if your history database is large. There is no progress indication.

Syntax:

```
-compact
```

Example:

```
spmapi.exe -compact
```

Command to Delete Older Entries in the History Database

The following command lets you delete older data entries in the History Database. The command allows entry by days, so if you enter 1, anything older than 24 hours from the current time is deleted.

Syntax:

-delhistory N

where N is the number of days. N can be any number greater than zero.

Example (delete all data in the history database older than 7 days):

spmmap.exe -delhistory 7

5.3 How to save XML results files from Switch Lists

This topic is for those who are using Managed Switch Port Mapping Tool v2.x in Switch List mode (this mode means two or more switches are mapped in succession).

To save individual XML files for each switch as they are mapped, go to the Switch List Editor and make sure 'save switch results as xml files after each switch mapping' is checked. This setting is different for each separate switch list and should be on by default.

Next, change your command line to:

spmmap.exe -maplist TheSwitchListName -outdir c:\temp -postexit

This tells the app to map the named list, save any XML results files in c:\temp and exit when complete.

If you do not have -outdir specified, the files will be saved to either (My) Documents or the last used directory you manually saved XML files to from the menu.

The XML filenames will have the format:

switch-ip_a-ip_b-ip_c-ip_d-unixTimestamp.xml

(example: switch-192-168-1-200-19338495.xml)

Please be aware that the command line option -xml D:\switch.xml only works when mapping a single switch.

5.4 Running this program on a schedule

By using Command Line arguments you can start the Managed Switch Port Mapping Tool on a scheduled basis to map one switch or a list of switches. The information gathered during that mapping process is always saved to the History Database and if desired, it can be displayed post scan in a web browser report.

Windows Task Scheduler is the recommended method for starting the program on a

scheduled basis. If you do this, you must allow enough time for the previous scheduled switch mapping action to complete before starting another.

Prerequisites:

1. You must define the settings for the switch and any secondary SNMP devices that you intend to use for gathering ARP data (ie. server/router 1 or 2).
2. After you define the settings, you must define switch groups. The command line options, whether for mapping a single switch or list of switches rely on predefined set of switch groups. A switch group is the switch settings plus zero, one or two additional SNMP devices. Those devices are queried for their ARP tables.
3. If you are going to use switch lists, you will need to think about how much time to allow between successive ARP table queries of the same device. For instance, if you have a core router/switch that has a large ARP table of several thousand entries and you have it listed in a switch list more than once, you may not want to pull in the ARP table then pull it in again in 3 minutes. Each device, whether a switch or another SNMP device, has a setting for how long to allow between polling of ARP tables. The default is 5 minutes. You may need this to be longer or shorter. What this value does is prevent the device from being interrogated for ARP information if the time is shorter than the value given.

Recommendation: please use the -postexit command to ensure that the app exits after mapping switches. If you leave it running, then try to map switches, database locking issues will interfere.

Windows Built-in Task Scheduler

This is the best tool to use for scheduling. It exists in all the versions of Windows this program supports. It is found in Control Panel/Administrative Tools and is called Task Scheduler. In Windows XP it is in the top level Control Panel and it is called Scheduled Tasks.

We are not going to go in the details of how to set it up for all versions of Windows, but this is the general idea and it's based on Windows 7: You will need to use 'Create Task' and define all the parameters you will need to accomplish the task of running the Managed Switch Port Mapping Tool.

The General Tab allows you to define what the task will be called and the security options. The Triggers tab defines the schedule. The Actions tab is where you enter the program information and command line options (arguments). The Conditions tab is more conditions that you will have to think through. In the Settings tab, under the 'If the task is already running, then the following rule applies:', be sure to select 'Do not start a new instance'.

A procedure for creating a scheduled task on Windows 7 using Windows Task Scheduler is found here:

<http://windows.microsoft.com/en-US/windows7/schedule-a-task>

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6 Databases

6.1 Main Database Overview

Overview

The main database is used to store data to enable faster and more accurate repeat switch mappings. The database itself is stored in application data directory and we use SQLite as a database engine. SQLite is embedded within this program and does not need require separate installation or maintenance.

☐ **These are brief descriptions of the tables found in the database.**

Combined ARP Table. All ARP tables we retrieve are merged and stored here. We recommend periodically clearing it from the [Database Maintenance Editor](#) especially if you are checking a switch on a different network. [Global Settings](#) has a checkbox that allows all non-static entries to be automatically cleared on program exit (default).

Router List Table. This table is a list of routers as reported to us by the switch. It is used to mark known routers in the results grid. You may wish to periodically clear it from the [Database Maintenance Editor](#).

Switch Information Table. This table is a list of switches queried along with detailed information reported to us by the switch. It is updated every time the switch is queried. You may wish to periodically clear it from the [Database Maintenance Editor](#).

IP/Hostname Resolver Table. This table is the saves DNS and NetBIOS name mappings between IP Addresses and Hostnames. It is used to rapidly map known IP addresses to hostnames. We recommend periodically clearing it from the [Database Maintenance Editor](#) especially if you are checking a switch on a different network. [Global Settings](#) has a checkbox that allows it to be automatically cleared on program exit (default) and a checkbox for controlling use of the table.

Global Settings Table. This table contains one row of global settings for the program. It also contains the last used switch group. It is updated every time the program exits. You can view it in the [Database Maintenance Editor](#).

SNMP Devices Table. This table is a list all SNMP devices with their community names as entered. It is updated every time the switch is queried. You may wish to periodically clear it from the [Database Maintenance Editor](#).

Switch Group Table. This table is a list of switch groups. A groups is defined by the unique combination of switch/Device 1/Device 2 IP entered. It is updated every time the switch is queried. You may edit it from the [Database Maintenance Editor](#).

List of Known Switches. This table is populated with switches that were found during previous mapping sessions. It is persistent between sessions and can only be erased from within the [Database Maintenance Editor](#).

Incoming Bytes Table - This table is used to save a snapshot of information about the incoming bytes on a switch's port. It is used for port bandwidth calculations. If you clear it, bandwidth cannot be calculated until at least two switch mappings of the same switch occur. It is persistent between sessions and can only be erased from

within the [Database Maintenance Editor](#).

Outgoing Bytes Table - This table is used to save a snapshot of information about the outgoing bytes on a switch's port. It is used for port bandwidth calculations. If you clear it, bandwidth cannot be calculated until at least two switch mappings of the same switch occur. It is persistent between sessions and can only be erased from within the [Database Maintenance Editor](#).

About the Database. The database is SQLite v3.X and is located in: %AppData%\NWPS\ManagedSwitchPortMapper. You may edit it from the [Database Maintenance Editor](#). If you delete the database, it will be automatically recreated and populated as you use this program.

6.2 History Database

The history database saves every switch mapping automatically whether it mapped manually or with a switch list. The history database is called history.db3. It is SQLite and it is located here:

%AppData%\NWPS\ManagedSwitchPortMapper

Is the History Database getting too big?

You can clear it (erase it) using the controls on the [Review History](#) window.

Big Problems?

You can exit the program and manually remove it. The database will be recreated on program startup.

6.3 Database Maintenance

The Database Maintenance window is provided so that you can view the contents of each database table and perform some minor edit operations. For brief descriptions of the tables, please see the [Main Database Overview](#).

Table Selection

Select any of the available tables for viewing above the data grid.

Delete Selected Row

This allows you to remove a selected row from the data table.

Erase Viewed Table

This allows you to erase a table. This is a particularly necessary operation especially with the Combined ARP Table and the IP/Hostname Resolver. Those two tables are liable to change more frequently than anything else because they depend on data that could be transient (especially in the DHCP environment).

Export Viewed Table

This exports the currently viewed database table to a text file. The columns are defined with the tab character. The first row is the column header text. CSV is not available because we use commas internally inside cells to show multiple IPs and hostnames.

Compact

This removes any data that has been marked for removal yet not actually removed from the database.

Integrity Check

This checks the database integrity.

Import ARP Table

Imports static ARP Table entries into the Combined ARP Table. The file format is a MAC address followed by an IPv4 address, separated by the tab character. One entry per line. There is a setting in [Global Settings](#) that controls whether these entries are deleted when you exit the program.

Add ARP Table Entry

Enter a MAC Address/IP Address pair manually here. The entry is added to the Combine ARP Table.

Export Switch Group

This exports a SQLite database file (.db3) with the SNMP Devices and Switch Group tables in it. You can use this to transfer settings to another installation of the Managed Switch Port Mapping Tool. Warning: Device passwords and community names are exported PLAINTEXT.

Import Switch Group

This imports the SNMP Devices and Switch Group tables from an SQLite file saved using Export Switch Group above. You have the option of merging with or without updating similar existing entries. The IP address is the unique key when importing.

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7 Definitions

7.1 ARP Table

The **ARP table** is a cached mapping between MAC addresses and IPv4 addresses. This cache is purged on a set schedule within the device and is used by IPv4 ethernet connected devices. ARP (address resolution protocol) is used to build this table with 'learned' or 'dynamic' entries. The ARP table is required for ethernet connected devices to communicate using TCP/IP. We combine all the ARP tables that we receive in the [Working Database](#).

7.2 Community Name

Simple Network Management Protocol (SNMP) v1 or v2c uses a password-like word or phrase known as a **community name** to allow authorized access to an SNMP enable device. The community name string is sent plaintext in a SNMP packet through the network to the target device. Most devices have separate community names for read and write actions. The community name entry fields in this program require the 'read' privilege community name only. SNMP v3 does not use community names.

7.3 IP Address

For purposes of this document, an **IPv4 address** is a 32 bit address identifying a device with a network interface assigned with that number. IPv6 is not currently supported but will be in a future version.

See also [MAC address](#).

7.4 MAC Address

A **MAC (Media Access Control) address** is a 48 bit number uniquely identifying the ethernet network interface. A MAC address is typically presented in hex with formatting in six groups of two bytes: xx-xx-xx-xx-xx-xx or xx:xx:xx:xx:xx:xx. A network interface will also typically have one or more [IP addresses](#) assigned to it.

7.5 Managed Switch

A **switch** is a device used to direct packets among a number of devices connected to the same local network segment. It typically has 8, 16, 24, 48 or more ethernet port connectors.

A **managed switch** is a device that can be controlled remotely using a web browser, Simple Network Management Protocol (SNMP) or telnet. A managed switch has an IPv4 or IPv6 address in contrast to a non-managed "dumb" switch or hub which only directs packets without user control over internal switch parameters.

7.6 SNMP

Simple Network Management Protocol (SNMP) is a protocol that uses UDP packets to send and receive data over port 161. This protocol gives access to an SNMP agent running on the switch. The agent gathers data that is accessed as a hierarchical tree similar to a file system directory structure. The branches and leaves of the tree so to speak are defined by MIBs (Management Information Bases) supported by the agent running on the device.

7.7 Switch Group

In this software a Switch Group is the combination of the Switch IP, the Server/Router 1 IP and the Server/Router 2 IP. The Switch can be only the Switch IP address if desired. A Switch Group is automatically defined when you manually map a switch or by using the [Switch Group Editor](#).

A [Switch List](#) is a set of Switch Groups and is mapped in the order defined in the list.

Each of these examples below are separate distinct switch groups:

| Switch IP | Server/Router 1 IP | Server/Router 2 IP |
|---------------|--------------------|--------------------|
| 192.168.1.195 | | |
| 192.168.1.195 | 192.168.1.12 | |
| 192.168.1.195 | 192.168.1.12 | 192.168.1.56 |
| 192.168.1.200 | 192.168.1.56 | |
| 192.168.1.200 | 192.168.1.12 | |
| 192.168.1.200 | | |

7.8 VLANs

VLANs - How they are reported in this software.

Virtual Local Area Networks (VLANs) are typically reported on a one VLAN per port basis. However, many switches can report more than one VLAN per physical port. For example Cisco® switches report VLANs on a per MAC address basis -- this means that a port may have more than one VLAN. If a switch supports (and reports) more than one VLAN per port, we show each VLAN on a row within the cell corresponding to the MAC address using the VLAN.

VLAN notation is often simply numeric, but for switches that support administratively assigned VLAN identification (ex. Juniper, D-Link, HP, Netgear etc), the string will appear followed by the VLAN number used internally by the switch in parentheses - ex. VLAN1 (1).

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8 Troubleshooting

8.1 Troubleshooting - Common Issues

This is a page of frequently asked questions and common problems. [Contact us](#) if you have any further concerns.

- ❑ **Problem: I see nothing in the results grid and I get an error immediately after trying to query the switch.**

What's happening: the switch is not replying to the SNMP messages sent by this software. Either the switch is refusing to accept and respond to the query OR you have settings wrong in the software. Switches often do not have SNMP activated by default - look at that issue carefully. Use Wireshark on the network connection if necessary to see what's going to the switch and what's coming back - if anything.

Resolution: These are several things you need to check:

1. Do you have the right IPv4 address for the switch?
2. Does the switch support SNMP communications? (low end consumer/home user switches are not usually do not support SNMP).
3. Is SNMP enabled in the switch? Some switches come with SNMP management OFF by default and it must be enabled either from the web interface or from CLI (command line interface -- telnet or a terminal attached to the switch).
4. Does the switch speak SNMPv1 or SNMPv2c? Select the SNMP version in Device Settings. SNMP v3 is supported in v2.
5. Do you have the right read privileges community name for the switch? (SNMP does not reply if the community name is incorrect.) Community names are like passwords.
6. Is the community name spelled correctly including case?
7. Does the switch have a permission list of IP addresses allowed to retrieve information via SNMP? Is your computer's IP address on that permission list?
8. Does your switch assign privilege levels to community names or views? (You will need telnet access to CLI usually to change these options.) Some manufacturers like Cisco allow you to assign different privileges.
9. Do you have a router in between the computer running the software and the switch? is it changing the IP address of the reply packets from the switch to something else? if so, the software will ignore packets coming from a different IP address than the switch (or server/router 1/2 device).

- ❑ **Problem: I see MAC addresses in the MAC Address column, but I do not see any IP addresses.**

Resolution: In order to find IP addresses for the MAC addresses given to us by the switch, we need to retrieve the [ARP table](#) from one or more sources. This software provides four methods for retrieving ARP tables. Make sure the left panel checkboxes "Query Switch ARP Table" and "Query Local ARP Table" are all checked. This retrieves the ARP table from the switch and the ARP table found in your computer.

If you are using Ping Sweep you should have Query Local ARP Table checked and we highly recommend you adjust your system's maximum ARP cache size to 4096. Instructions for doing so are in this [Microsoft Knowledge Base article 949589](#).

Next you need to be sure that you have the IP address and read community name for a router or a server set in the Server/Router 1/2 entry fields. A router or server is necessary because those devices will have ARP tables with the IP/MAC addresses of many of the devices connected to them. You can also set the Secondary as well so that another ARP table is retrieved. [Please review this discussion and FAQs](#) about the Server/Router 1 or 2 device queries. The report that appears in the web browser following mapping ports provides a table showing the number of items found in each ARP table.

If you are hitting the ARP Table limits defined for each device (a message will popup about this), you can go into the settings for that device and increase the limit from the default of 1024 to something larger - increasing it will increase the time it takes to download the ARP table from the device.

▣ **What do I put in the Server/Router 1 or 2 fields?**

These fields are for putting in the IP address and community name of a device(s) that is running SNMP and has ARP tables that we can retrieve. The device(s) should be a router, core switch, print server or other type of server that has visibility into the network segment of the switch you are working with. [Please see this discussion and FAQs.](#)

▣ **Problem: It is taking way too long to complete the switch mapping.**

Resolution: Several factors affect the time it takes to map a switch. The html report that appears in your web browser after mapping a switch has information that can help you decide where a speed bottleneck is occurring:

1. Turn off Ping Sweep. If you are pinging more than 500 or so IPs, this can take some time.
2. If you have Resolve IPs to Hostnames checked, it may take a quite a while to resolve all the IP addresses the first time the switch is queried. This is especially true if there are a large number of IP addresses. You can refer to the Timing Table in the web report for information about how long it actually took. We do provide an IP to Hostname database resolver table which is cleared at the end of the session by default. You can control this in [Global Settings](#) so that you can use previously resolved IP addresses from another session. If you do this be careful in a DHCP setting because some of those IPs may be used by different hosts at a later date.
3. If you have a server or router with a large number of records (IP to MAC mappings) in the ARP table, this can also take a while. Please refer to the Timing Table in the web report to see how long it actually took. You can save the ARP information from the device by going into Global Settings and telling the program not to clear the ARP table on program exit. If you do this, please be aware that in a DHCP situation, the IP to MAC mappings may eventually change. You can also tell the program NOT to query that device a second time by removing it's IP address from the Server/Router 1 or 2 IP Address entry box.
4. Lower the Arp Table Limit value in [Global Settings](#). The default is 1024. This means each SNMP device that we retrieve an ARP table from is allowed to send 1024 records maximum.

▣ **Problem: My Cisco® switch does not respond and I know I have the right community name.**

Discussion: The settings in your switch may not be correct and SNMP may not be activated. You will need to hook a terminal to the switch and look at the running config and modify it as necessary. Some switches also permit accomplishing the same things through a web interface.

To activate SNMPv1 and v2c, you must have be sure that the command 'no snmp-server' (no quotes) is removed from your running config. Then you need to add (string is the community name like 'public'):

snmp-server community *string* ro [access-list-number]

If you add an access-list-number after ro above, you may also need to optionally add:

access-list access-list-number permit (or deny) sourceIP

(sourceIP is your IP address where the Switch Port Mapper is running)

This is a simple example with IOS 12.2:

Using a terminal connected to the management port on the switch, type each command followed by enter.

enable

config term

snmp-server community public ro

end

show running-config

(optionally save it for the next switch reboot)

copy running-config startup-config

The commands below are from earlier versions of IOS.

You may need to add your computer's IP address (and mask) to the SNMP permission list using this CLI (command line interface) command:

set ip permit 192.168.1.1 255.255.255.0 snmp

You may also need to enable SNMP on your switch using this CLI command:

set snmp enable

You may need to enable SNMP v1 or v2c on your switch using this CLI command:

set snmp access security-model v1

set snmp access security-model v2

For further detailed information, consult your switch manual. Also look at the corresponding 'show' commands for those parameters.

- ❑ **Problem: My Cisco switch appears to map, but no MAC addresses are seen in the MAC column**

Resolution: The SNMP settings for your switch may be set so that certain parts of the MIBs cannot be accessed with your access credentials. In particular, Bridge MIB - Cisco IOS based switches do not support qBridge mib as of this writing.

You will need to use CLI or Telnet to access the switch, then use the 'enable' command to enter privilege command mode (password will be required). Enter the command 'show running' to show the running config. Look for snmp-server entries. You will probably need to refer to the IOS command guide at this point to figure out what each entry is doing.

Typically entries:

snmp-server community public RO <-- this uses the default view to allow read only access to the mibs you are allowed to see in the default view.

snmp-server community public view myview RO

If another view is used, it will be shown with the notation view viewname right before the RO notation above.

snmp-server view myview oid included|excluded <-- look for exclusions of oid .1.3.6.1.2.1.17 which is bridge mib. For example **snmp-server view myview .1.3.6.1.2.1.17 excluded --> change it to included**

❑ Problem: My Linksys® switch does not respond.

Resolution: Linksys does not enable SNMP "out of the box". You will need to use your web browser to access the switch and modify the SNMP settings as necessary.

❑ Problem: My Extreme Networks Summit® switch does not respond.

Resolution: Extreme Networks does not enable Bridge information through SNMP "out of the box". You will need to use CLI to access the switch and enter **enable snmp add dot1dTpFdbTable** - you may also need to enable snmp. This most likely applies to older ExtremeWare OS.

❑ Problem: The VLANs do not seem right.

Resolution: The current version of this software reports one VLAN per physical port with the exception of switches that can report more than one VLAN per port using either qBridge MIB or Cisco specific information. [Please see this page.](#)

8.2 SNMPv3 and Cisco® Switches

IMPORTANT information about Cisco IOS and SNMPv3.

Cisco uses SNMPv3 'context' to allow retrieval of per-VLAN data from Bridge-MIB (things like device MAC addresses). This is not pre-configured so each switch must have the running-config in the switch changed to report the VLAN details. If the switch is not configured, this software and any other switch mapping software cannot map the switch with SNMPv3. We can map it using SNMPv1 or v2c if allowed without any special config changes.

First, you need to see if your switch supports contexts.

From CLI do: 'show snmp context' (no quotes).

Assuming success, next check to see if your switch supports prefix matching.

In your running config add:

'snmp-server group yourV3groupName v3 auth context vlan- match prefix' (no quotes and don't forget the dash after vlan).

If it does support prefix matching every Cisco switch using IOS and SNMPv3 that you intend to map must have that command in the config - **you can skip the next section.**

If it does NOT support prefix matching you have a lot of work to do. Every VLAN must have a context set up for it.

You have to add this command into running config for EVERY VLAN:

```
snmp-server group yourV3groupName v3 priv context vlan-(vlanid)
```

So if you have 10 VLANs on the switch, that command must appear 10 times, once for each VLAN (no parens around 'vlanid' and you may want to add 'access #' at the end).

Examples:

```
snmp-server group yourV3groupName v3 priv context vlan-6
```

```
snmp-server group yourV3groupName v3 priv context vlan-100
```

```
snmp-server group yourV3groupName v3 priv context vlan-117
```

More questions? see this thread: <https://supportforums.cisco.com/thread/2036734>

8.3 Installing Telnet on Windows 8, 7 or Vista

By default, Windows 8, 7, Vista and 2008 do not have the command line Telnet client installed. Telnet is used for text-based command line communication with devices like network switches. You can install telnet by following these steps:

1. Click the Start Icon (7 & Vista) and then select Control Panel. Windows 8 users need to access control panel by going to the desktop, then moving the cursor to the lower right and select the gear icon (settings). Now you can select Control Panel.
2. Select Programs and Features.
3. Select Turn Windows features on or off.
4. Select the **Telnet Client** option.
5. Click OK.
6. A dialog box will appear to confirm installation. The telnet command should now be available through the Command Prompt window.

Telnet is installed by default in Windows XP and 2003.

8.4 SNMP Walk Tool

This is a technical support tool designed to retrieve information from an SNMP enabled device. Sometimes tech support needs some information about the switch or other SNMP device that is not readily apparent.

There are steps that must be taken order to use it.

Step 1: Press one of the buttons in Step 1 group to load either the currently used Switch, Device 1 or Device 2 SNMP parameters into the tool. You can edit them using Edit SNMP Parameters - if you do this, please be sure the timeout is short, around 3 seconds maximum. Any changes you make will NOT be saved for that device. The target IPv4 address will be shown in the box.

Step 2: Either enter an OID in the numeric form .1.3.6.1 etc or push one of the preset buttons as directed by technical support.

Step 3: Press *Do SNMP Walk*. Press *Stop* if you need to, but normally you should just let it run.

Step 4: When the 'walk'/dump is complete, press *Copy all results to clipboard* and optionally email it to us as directed.

Endnotes 2... (after index)

NetScanTools Pro

Because you need to know what's out there (tm)