XTRAMUS

# NuTAP-311
# User's Manual

USM Ver 1.0

# Foreword

### Copyright



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# Revision History

| Date | Version | History |
|---|---|---|
| 2012/04/06 | 1.0 | First draft version |

# Table of Contents

# 1. NuTAP-311 OVERVIEW

## 1.1. General Description of NuTAP-311

NuTAP-311 is a portable network TAP device. Embedded with 2 Network Ports and 2 Monitor Ports, NuTAP-311 can monitor and redirect any data streams flow through it.


Network TAP is a hardware device/software that allows monitoring data flows in a network environment dynamically without any interference.

As mentioned above, NuTAP-311 is embedded with 2 Network Ports and is capable of monitoring all data flows between two network points. All data traffic flows between NuTAP-311's Network Port A0 and A1 can be brought out for further analysis and research dynamically and without intervening network environment.

NuTAP-311 is embedded with 4 Configuration Buttons and 4 Operation Buttons, allowing users to configure test criteria and make NuTAP-311 system settings. Also, the LCD screen located on NuTAP-311's front panel makes it easy to view test statistics and system information easily.

Also, you can configure test criteria and make NuTAP-311 system settings with Web Browser (by connecting NuTAP-311's Management Port to a network where a PC is located), HyperTerminal (by connecting NuTAP-311's Console Port to PC's Serial Port via a RJ45-to-USB cable), and NuSet-MiniTAP (by connecting NuTAP-311's Mini-USB Port with PC's USB Port).

NuTAP-311 is a compact, lightweight, and highly cost-effective device that provides 3 different filters for users to choose: Forwarding Filter, Re-Direct Filter, and Capture Criteria. All these filters are powered by Xtramus SDFR (Self-Discover Filtering Rules), which makes packet capturing/filtering over Ethernet easy and convenient.

## 1.2. KEY FEATURE OF NuTAP-311

- Filter and redirect TAP streams to monitor port by SDFR technique which can ease the loading of monitor PC
- SDFR (Self-Discover Filtering Rules), a set of filtering rules including Destination Address, Source Address, VLAN, Destination IP, Source IP, Destination Port, and Source Port
- 2 Network Ports and 2 Monitor Ports of 10/100/1000 Mbps RJ45 Ethernet port
- 1 Management Port which allows users to make system management/test settings and view test statistics via Web Browser
- 1 Console Port which allows users to make system management/test settings and view test statistics via HyperTerminal
- 1 Mini-USB Port which allows users to configure test variables, access test results, and upgrade firmware/FPGA via NuSet-MiniTAP
- Both Network Ports support Universal Stream Counter (USC), each USC can contain up to 256 sets of statistics (up to 48-bits) including Packets, Bytes, Packet Broadcast, CRC Error, IPCS Error, Packet Multicast, and Transferring Rate
- NuSet-MiniTAP, a utility software designed for NuTAP-311 and runs under Windows

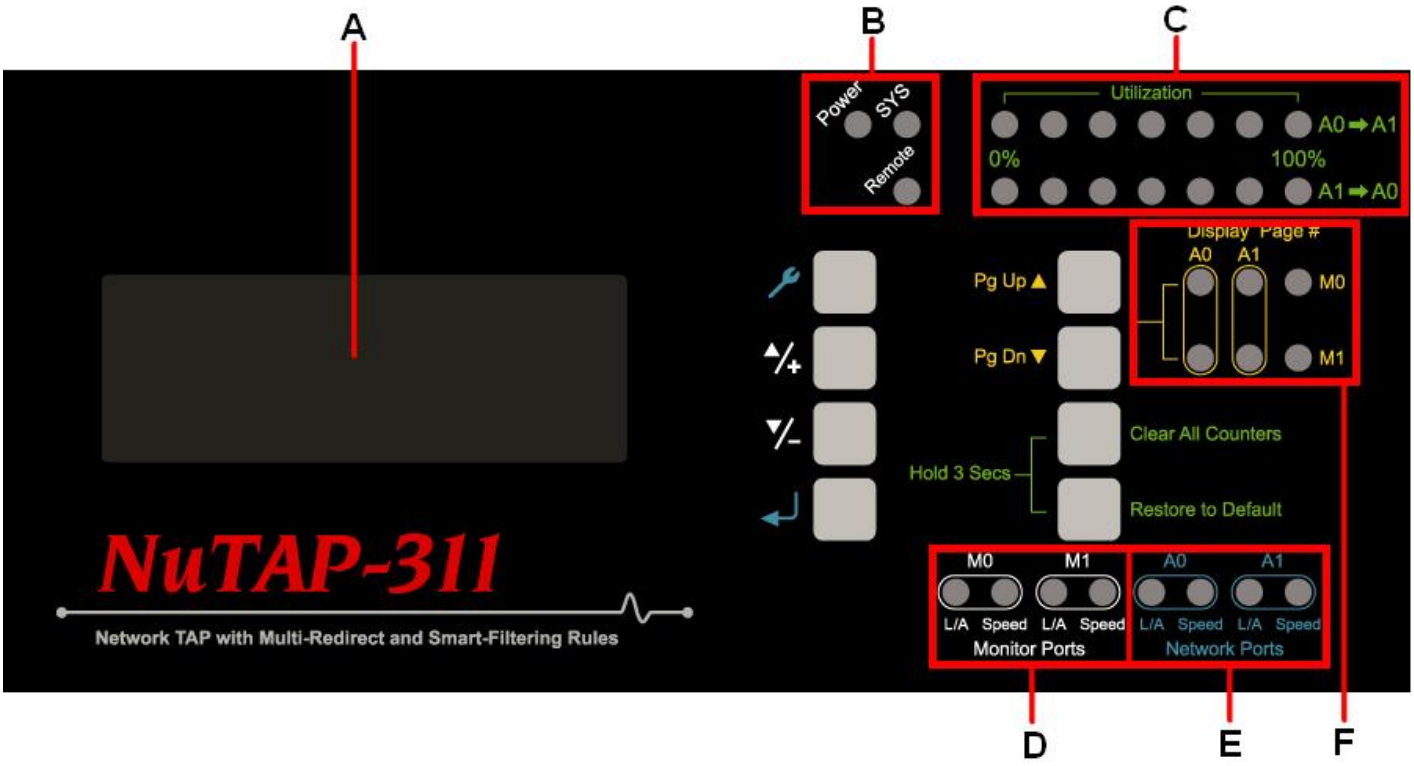
  environment. When connecting NuTAP-311 with your PC via a Mini USB cable, it allows users to:
  - Upgrading NuTAP-311's firmware and FPGA
  - Monitoring data flows in the network environment
  - Configuring test settings and accessing test results
  - Setting 2 sets of Session Filter including Port A → Port B and Port B → Port A
  - Setting SDFR (Self-Discover Filtering Rules). SDFR is a set of filtering rules including Packets, Bytes, Packet Broadcast, CRC Error, IPCS Error, Packet Multicast, and Transferring Rate
  - Supports multi-language User Interface including Simplified Chinese and English
- Embedded with control buttons and LCD display screen that allow users to set test criteria and view test statistics

## 1.3. NuTEA-311 Function Overview

### NuTEA-551 Ports

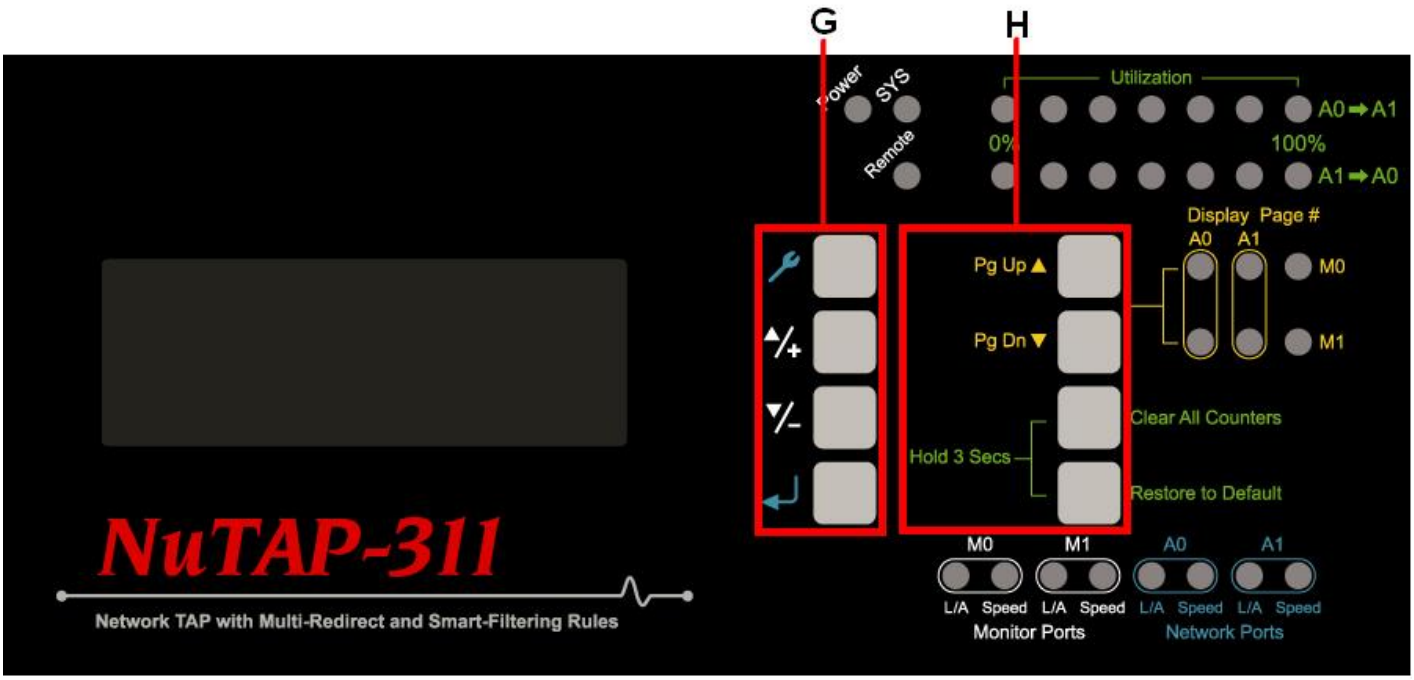

| | Description |
|---|---|
| **A** | 38400 bps RJ45 **Console Port** for system management via HyperTerminal |
| **B** | Mini-USB Port for system management via NuSet-MiniTAP |
| **C** | 100 Mbps RJ45 **Management Port** for system management via web browser |
| **D** | 12V DC Power Jack |
| **E** | 10/100/1000 Mbps Full Ethernet RJ45 **Network Port A0/A1** |
| **F** | 10/100/1000 Mbps Full Ethernet RJ45 **Monitor Port M0/M1** |

## LCD & LEDs




| LCD & LEDs Descriptions | | | |
|---|---|---|---|
| **LCD (A)** | **4 × 20 (Characters ) LCD Screen** | | |
| | **Forwarding Filter** | ➢ A0 → A1 | ➢ A1 → A0 |
| | **Capture Criteria** | ➢ A0 → A1 | ➢ A1 → A0 |
| | **Redirection** | ➢ A0 → A1 >> M0 | ➢ A1 → A0 >> M1 |
| | **Re-direct Filter** | ➢ A0 → A1 | ➢ A1 → A0 |
| | **Statistic Counters** | ➢ Network Port A0 | ➢ Network Port A1 |
| | | ➢ Monitor Port M0 | ➢ Monitor Port M1 |
| | **System Setting** | NuTAP-311 Buzzer ON/OFF | |
| | **System Information** | Displaying NuTAP-311's System Information | |
| | **Restore Defaults** | Restore All Settings of NuTEA-551 to Default Value | |
| **LEDs (B~H)** | **General System Information (B)** | | |
| | ➢ Power | ➢ SYS | ➢ Remote |
| | **Utilization (C)** | | |
| | **A0 → A1/A1 → A0** | 0 ~ 100% | |
| | **Monitor Ports Status (D)** | | |
| | ➢ M0: Link/Active, Speed | ➢ M1: Link/Active, Speed | |
| | **Network Port Status (E)** | | |
| | ➢ A0: Link/Active, Speed | ➢ A1: Link/Active, Speed | |
| | **Display Page (F)** | | |
| | ➢ A0: Tx/Rx Rate by packets | ➢ A1: Tx/Rx Rate by packets | ➢ M0: Tx/Rx Rate by packets |
| | ➢ A0: Tx/Rx Rate by bytes | ➢ A1: Tx/Rx Rate by packets | ➢ M1: Tx/Rx Rate by packets |

## Buttons

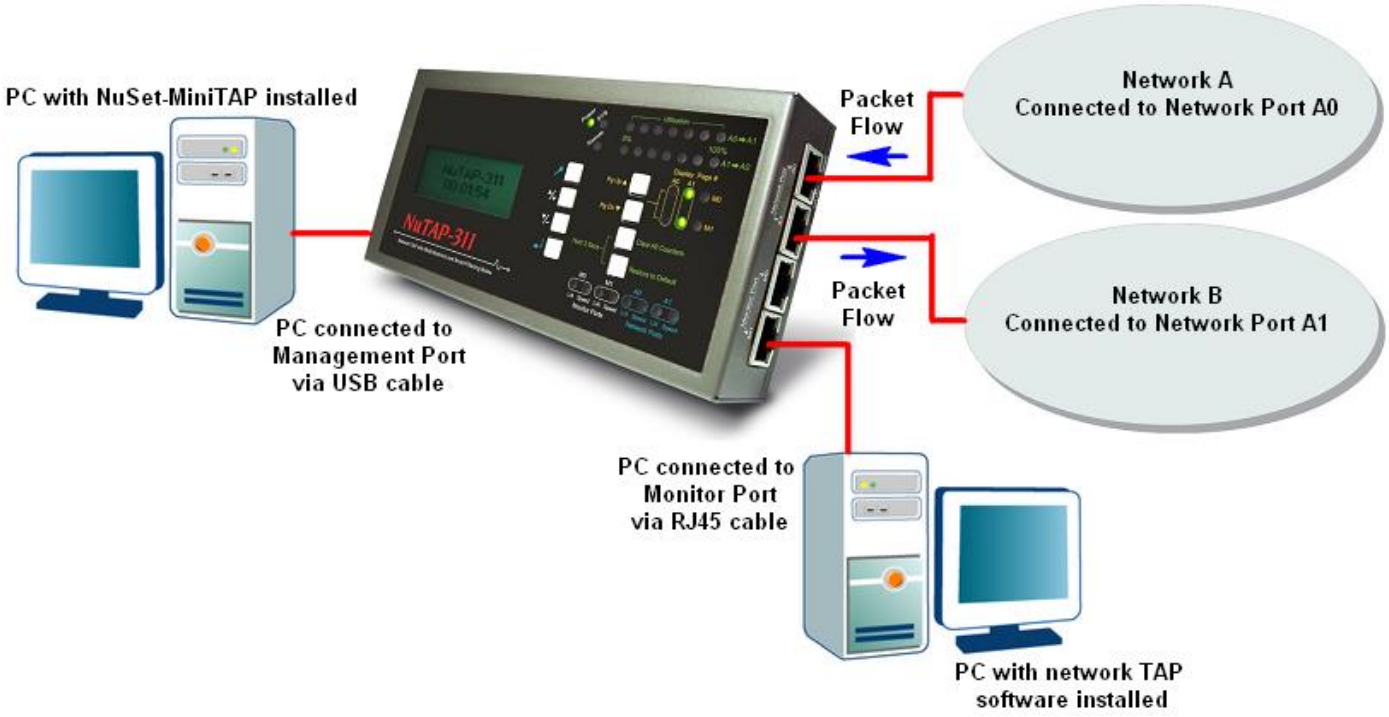



| Buttons Descriptions | | | |
|---|---|---|---|
| G | Operation Buttons | | Enter the Main Menu(*) or return to the previous Menu |
| | | | Move the select cursor up |
| | | | Move the select cursor down |
| | | | Execute the selected selection |
| H | Configuration Buttons | **Pg Up ▲** | Accessing **Network/Management Port** Short Cut Menu, or move the select cursor UP |
| | | **Pg Dn ▼** | Accessing **Network/Management Port** Short Cut Menu, or move the select cursor Down |
| | | **Clear All Counters** | Press and hold this button for 3 seconds to clear all counters |
| | | **Restore to Default** | Press and hold this button for 3 seconds to set all settings to default |

***Menu will be displayed on the LCD screen.**

# 2. NuTAP-311 Application Example & Hardware Installation

## 2.1. Hardware Installation for Network Tapping



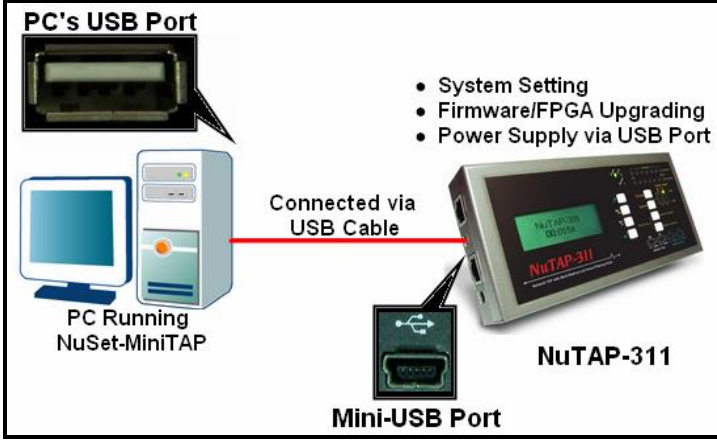

As the example shown in the figure above, NuTAP-311 allows you to perform network tapping. You can monitor/filter packets that meet the criteria by:

- Connecting NuTAP-311's **USB Port** to a PC with NuSet-MiniTAP installed via a USB cable.
- Connecting NuTAP-311's **Monitor Port** (M0 or M1, depending on your settings) to a PC with other network TAP software installed via an RJ45 cable.

## 2.2. Hardware Installation for NuTAP-311 Management

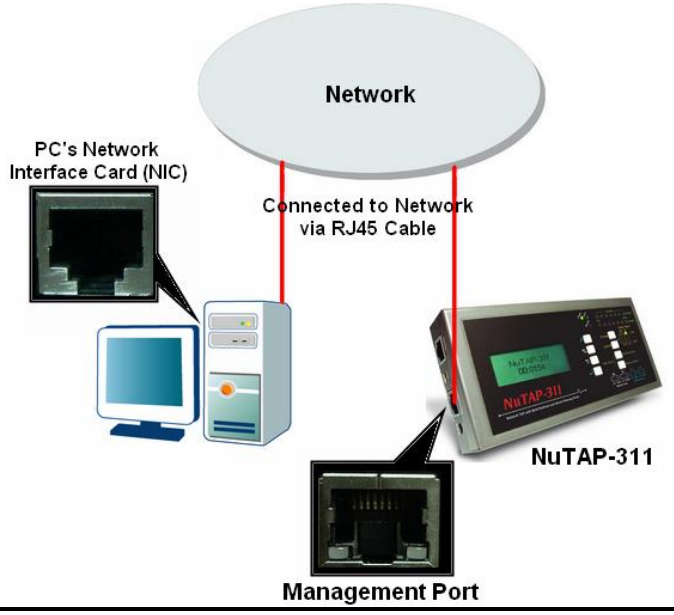
There are 3 different ways to connect NuTAP-311 to your PC and configure/view its settings:

### Connecting via USB Cable




By connecting NuTAP-311's **Mini-USB Port** to **PC's USB Port** via a **USB** cable, you can configure/view NuTAP-311's settings with NuSet-MiniTAP installed on your PC.

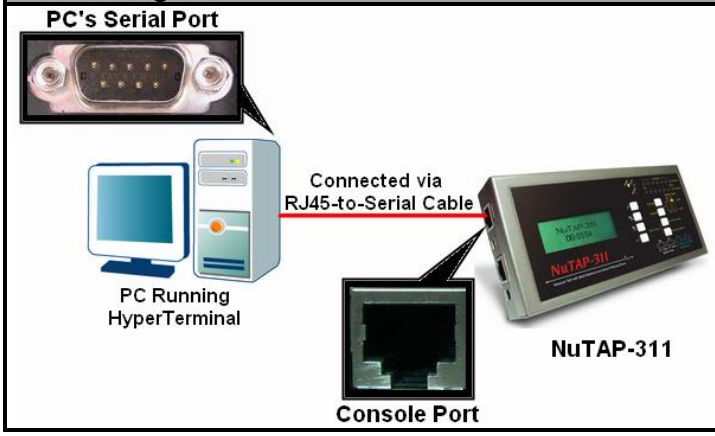
### Connecting via RJ45 Cable




By **connecting NuTAP-311 and PC to the same network**, you can configure/view NuTAP-311's settings with the web browser installed on your PC.

To access NuTAP-311's configuration webpage with your PC's web browser, please connect to NuTAP-311's **Management Port** to the network which your PC is connected to.

### Connecting via RJ45-to-Serial Cable




By connecting NuTAP-311's **Console Port** to **PC's Serial Port** via **RJ45-to-Serial** cable, you can configure/view NuTAP-311's settings with **HyperTerminal** softwares installed on your PC.

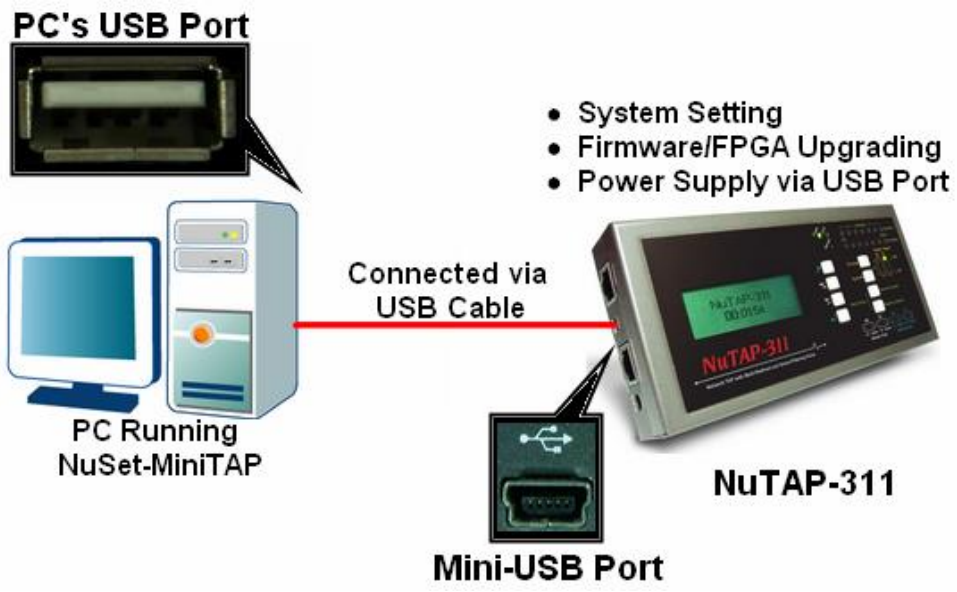
# 3. NuTAP-311 Management

As mentioned in **2.2. Hardware Installation for NuTAP-311 Management**, you can configure NuTAP-311's settings and view statistics generated while performing network tapping with NuTAP-311 by:

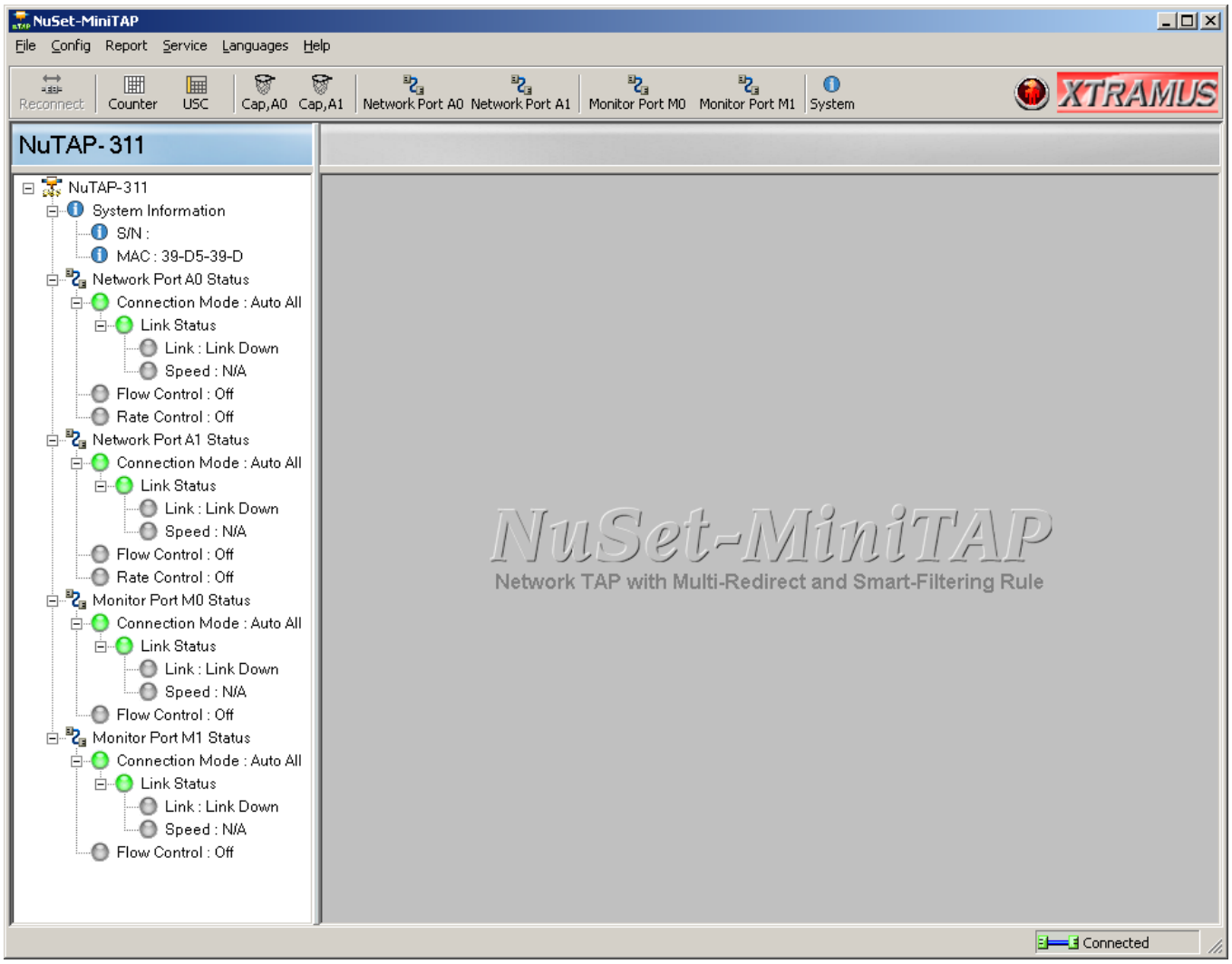
- Connecting NuTAP-311 to PC via a USB cable, and accessing NuTAP-311's settings/statistics with **NuSet-MiniTAP** installed on PC.
- Connecting NuTAP-311 and PC to the same network via an RJ45 cable, and accessing NuTAP-311's settings/statistics with **PC's web browser**.
- Connecting NuTAP-311 and PC via an RJ45-to-Serial cable, and accessing NuTAP-311's settings/statistics with **HyperTerminal**.

Please see the sections down below for more information regarding to NuTAP-311 management.

## 3.1. Managing NuTAP-311 with NuSet-MiniTAP




NuTAP-311 comes with GUI (Graphic User Interface) utility software **NuSet-MiniTAP** for setting test criteria and system management. Please note that you have to connect NuTAP-311 to your PC with a **USB** cable as shown in the figure above.



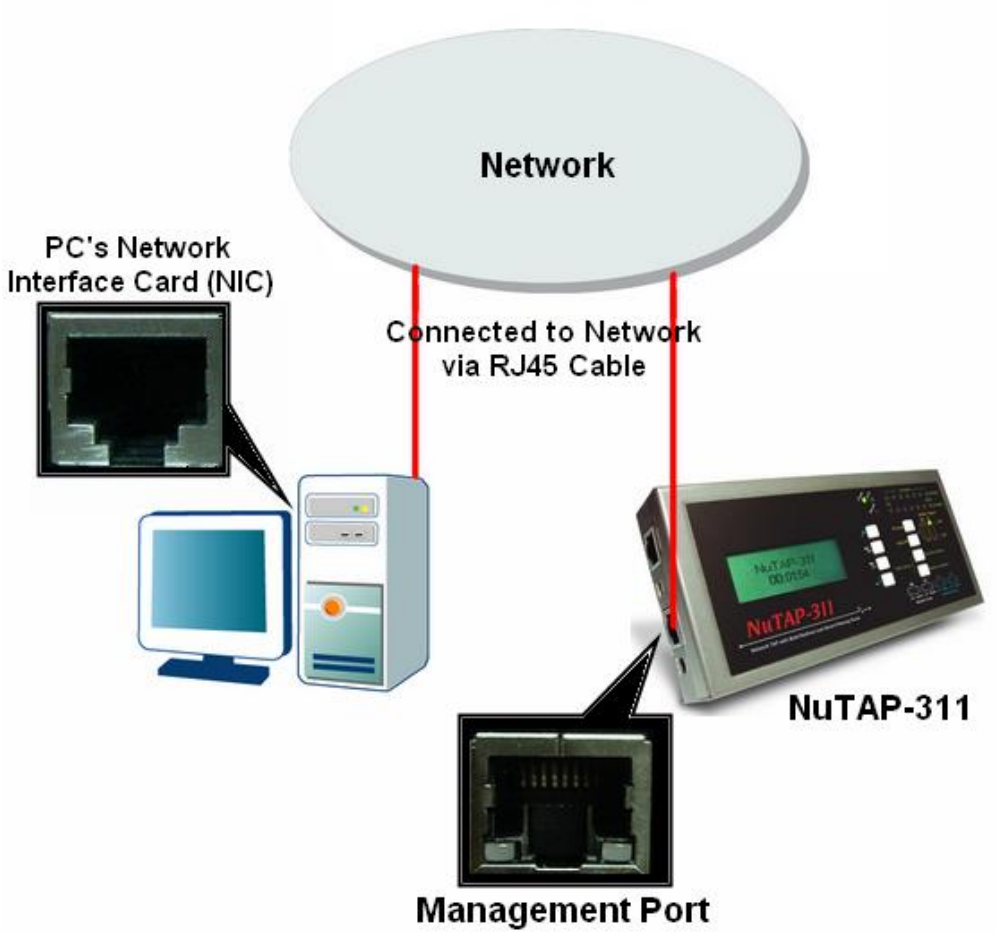

When NuTAP-311 is connected with PC via its **USB** cable, you can set test criteria, save/view testing logs, and upgrade NuTAP-311's firmware/FPGA with **NuSet-MiniTAP**.

However, before using **NuSet-MiniTAP's** features and functions, you have to install it on your PC first.

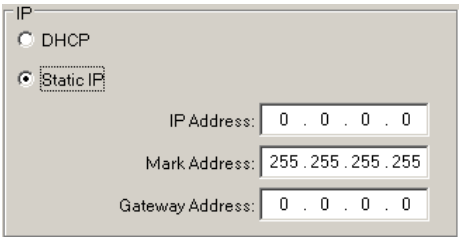
NuTAP-311's driver is contained in NuTAP-311's utility software. Both NuTAP-311's driver and utility software will be installed at the same time. Please note that DO NOT connect your NuTAP-311 to the PC via a USB cable before the installation.

For more detailed descriptions about installing **NuSet-MiniTAP** and its functions, please refer to **6. NuSet-MiniTAP Functions**.

### 3.2. Managing NuTAP-311 with PC's Web Browser



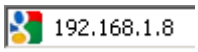

NuTAP-311 is embedded with a configuration webpage, and can be accessed by connecting NuTAP-311's **Management Port** to the network which your PC is connected to, as shown in the figure above.




Before accessing to NuTAP-311's configuration webpage with your PC's web browser, please set NuTAP-311's IP, subnet mask, and gateway addresses with **NuSet-MiniTAP** according to the network that NuTAP-311 is connected to. For more information regarding to set NuTAP-311's IP/subnet mask/gateway addresses via NuSet-MiniPG, please refer to **6.1.2. Config**.

The figure down below is an **example** for setting NuTAP-311's IP, subnet mask, and gateway addresses base on network/PC settings. The settings in the figure down below will be used as configuration example in the following sections of this manual as well. However, **please note that the settings demonstrated here might not work with your network environment.**

To access NuTAP-311's management webpage, please open your web browser, and type in NuTAP-311's default IP address (**192.168.1.8**) in web browser's URL field as shown in the figure on the right side. **If you've changed NuTAP-311's IP address, please input the IP address you've changed to instead.**




**NuTAP-311's management webpage only supports Microsoft Internet Explorer ®**, and NuTAP-311's management webpage might not display correctly if you're using other web browser.

A window will pop up after you entering NuTAP-311's IP address. Please enter the User Name and Password for NuTAP-311's configuration webpage.

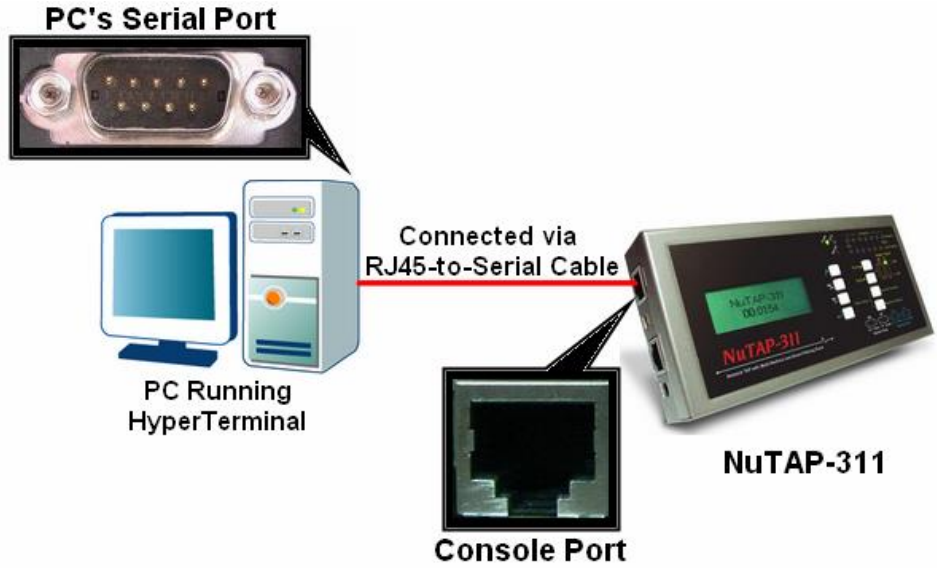

- **Default User Name: admin**
- **Default Password: admin***

  ***Please note that the User Name and Password are case-sensitive.**

For safety issues, it is highly recommended that you should change the User name and Password when logging to NuTAP-311's management webpage for the first time.

After inputting NuTAP-311 management webpage's User Name and Password, you should be able to see NuTAP-311's management webpage displayed on your web browser.

## 3.3. Managing NuTAP-311 with HyperTerminal




NuTAP-311 allows users to make system configurations, view test statistics/system information with **HyperTerminal**. To access NuTAP-311 via **HyperTerminal**, you have to connect NuTAP-311's **Console Port** with **PC's Serial Port** via an **RJ45-to-Serial cable** as shown in the figure above.

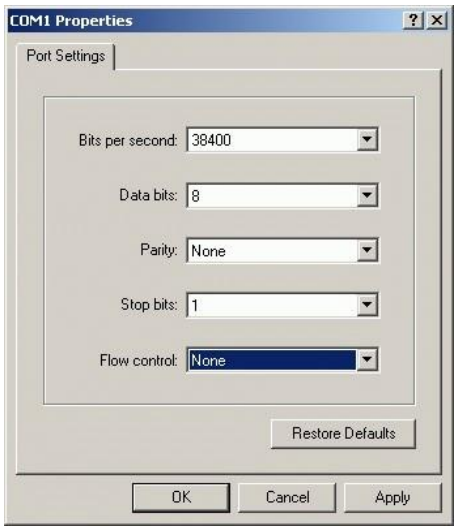
### 3.3.1. HyperTerminal Settings for NuTAP-311

After connecting the **PC's serial port** to NuTAP-311's **Console Port** via an **RJ45-to-Serial cable**, please start the **HyperTerminal** software installed on your PC and establish connection according to the steps listed down below.

| **Establishing Connection with NuTAP-311** | |
|---|---|
|  | 1. Input a name for this connection, such as NuTAP-311, and also select an icon for this connection. Click "**OK**" to continue. |

## Establishing Connection with NuTAP-311

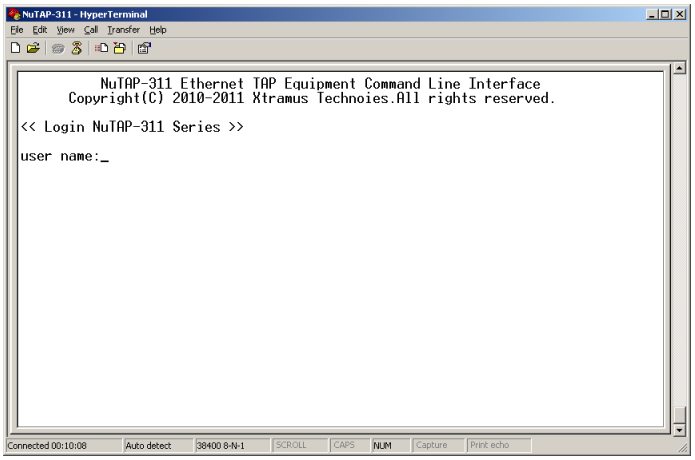

2. Select the COM port of PC for this connection. Click "**OK**" to continue.




3. Set the COM port parameters according to the settings listed down below:

- **Bits per second:** 38400
- **Data bits:** 8
- **Parity:** None
- **Stop bits:** 1
- **Flow control:** None

Click "**OK**" to continue.

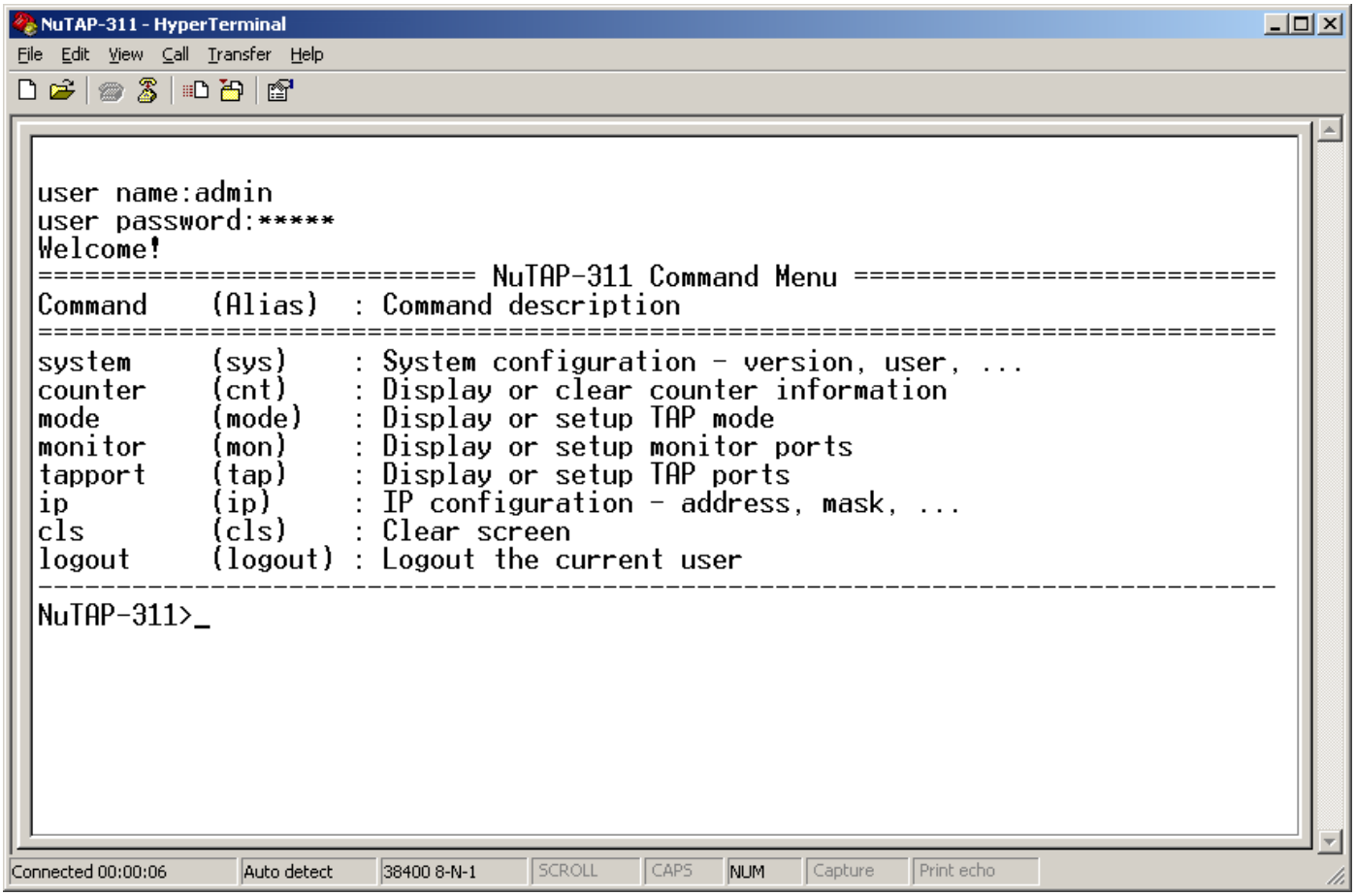



Click the "**Enter**" key on your keyboard to start setting NuTAP-311 via HyperTerminal. To log in, please type NuTAP-311's user name and password:

- **Default User Name: admin**
- **Default Password: admin (Both the User Name and Password are case-sensitive.)**

If you change NuTAP-311's user name and password with NuTAP-311's configuration webpage, please log in with the new user name and password here.

### 3.3.2. NuTAP-311 HyperTerminal Commands

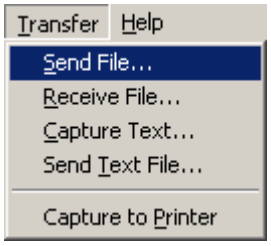


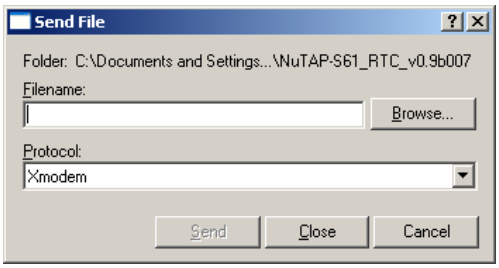
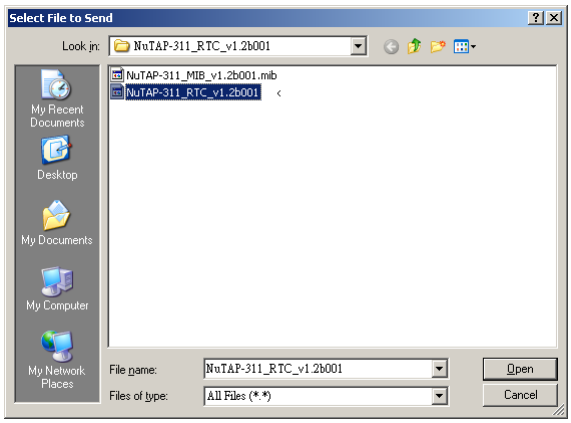
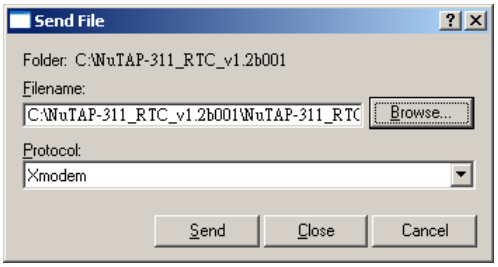
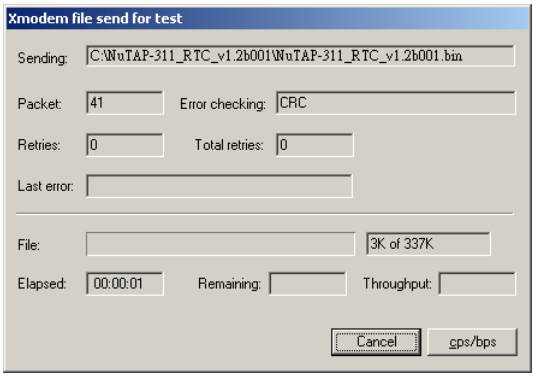

After logging in NuTAP-311 via HyperTerminal, a **NuTAP-311 Command Menu** will be displayed, showing NuTAP-311's HyperTerminal commands. Please see the table down below for brief descriptions of NuTAP-311 commands:

| Command | Alias | Command Description |
|---|---|---|
| **system** | **sys** | The **system** command allows you to view NuTAP-311's system information, make system configurations, and upgrade NuTAP-311's firmware/FPGA. |
| **counter** | **cnt** | The **counter** command allows you to view NuTAP-311's counter information and set USC (Universal Stream Counter). |
| **mode** | **mode** | The **mode** command allows you to view NuTAP-311's current running mode or change NuTAP-311's running mode (aggregate/segregate/multi-mirror). |
| **monitor** | **mon** | The **monitor** command allows you to view NuTAP-311's **Monitor Port (M0/M1)** status or configure Monitor Port's settings. |
| **tapport** | **tap** | The **tapport** command allows you to view NuTAP-311's **Network Port (A0/A1)** status or configure Network Port's settings. |
| **ip** | **ip** | The **ip** command allows you to view NuTAP-311's current IP settings or configure these settings. |
| **cls** | **cls** | The **cls** command allows you to clear HyperTerminal screen. |
| **logout** | **logout** | The **logout** command allows you to log out. For security issues, it is recommended that you should log out if you're not using the HyperTerminal anymore. |

Please see the sections down below for detailed information about each command.

### A. NuTAP-311 HyperTerminal Command – system

<table>
<tr><th colspan="4">Command Descriptions – system</th></tr>
<tr><td rowspan="13">system</td><td>show</td><td colspan="2">The system show allows you to view NuTAP-311’s PCB/firmware/FPGA versions, as well as hardware temperature.</td></tr>
<tr><td rowspan="3">user</td><td>show</td><td>The system user show command allows you to view the current users and their passwords.</td></tr>
<tr><td>admin</td><td>The system user admin [name | password] <name | password> command allows you to change the user name and its password of the user with administrator privilege. For example, if you type in system user admin name test123 and press enter, a user named test123 with administrator privilege will be created.</td></tr>
<tr><td>guest</td><td>The system user guest [name | password] <name | password> command allows you to change the user name and its password of the user with guest privilege. For example, if you type in system user guest name test123 and press enter, a user named test123 with guest privilege will be created.</td></tr>
<tr><td rowspan="2">devname</td><td>show</td><td>The system devname show command allows you to view the device name assigned to NuTAP-311.</td></tr>
<tr><td>set</td><td>The system devname set [device name] command allows you to view the device name assigned to NuTAP-311.</td></tr>
<tr><td rowspan="3">snmp</td><td>show</td><td>The system snmp show command will show the current SNMP (Simple Network Management Protocol) settings.</td></tr>
<tr><td>writecommunity</td><td>The system snmp writecommunity <parameter> allows you to set the community with write privilege. The <parameter> can be public, private, or user names.</td></tr>
<tr><td>readcommunity</td><td>The system snmp readcommunity <parameter> allows you to set the community with read privilege. The <parameter> can be public, private, or user names.</td></tr>
<tr><td>save</td><td colspan="2">The system save command allows you to save the current settings to NuTAP-311’s NV-RAM. Please note that all unsaved settings will be lost after system reboot.</td></tr>
<tr><td>update</td><td>firmware/FPGA</td><td>The system update [firmware/FPGA] commands allow you to upgrade NuTAP-311’s firmware/FPGA. The following descriptions are for upgrading NuTAP-311’s firmware. However, procedures for upgrading NuTAP-311’s FPGA are quite the same and can be related.<br>1. Type in “system update firmware” and click enter. Press Y to proceed and start upgrading firmware, or press N to cancel.<br>  <br><br>2. Press Transfer on HyperTerminal’s menu bar and choose “Send File”.<br>  <br></td></tr>
</table>

| Command Descriptions – system | | | |
|---|---|---|---|
| **system (Contd.)** | **update (Contd.)** | **firmware/FPGA (Contd.)** | 3. A **Send File** window will pop up. Please set the **Protocol** to **Xmodem**, and click the **Browse** button.<br>  <br><br>4. Choose the firmware you would like to upgrade to and click **Open**.<br>  <br><br>5. Click the **Send** button to start sending firmware.<br>  <br><br>6. System is sending firmware to NuTAP-311.<br>  <br><br>7. NuTAP-311 will reboot when finishing upgrading its firmware. |
| | **reset** | The **system reset** command allows you to reset all NuTAP-311's settings back to the default values. | |
| | **reboot** | The **system reboot** command allows you to reboot NuTAP-311. Please note that all unsaved settings will be lost after rebooting. | |

### B. NuTAP-311 HyperTerminal Command – counter

<table>
<tr><th colspan="5">Command Descriptions – counter</th></tr>
<tr><td rowspan="11">counter</td><td rowspan="4">show</td><td colspan="3">The counter show command allows you to view all NuTAP-311’s counter report, as well as hardware temperature. You can also add additional commands behind the counter show command as listed down below:</td></tr>
<tr><td rowspan="3">usc</td><td colspan="2">The counter show usc [a0 | a1] [group=0 | group=1] command allows you to view NuTAP-311’s USC (Universal Stream Counter) report of its Network Port (A0/A1) and the USC group. For example, to view the USC in USC group 0 for Network Port A0, please input the command “counter show usc a0 group=0”.</td></tr>
<tr><td>configure</td><td>The counter show configure command allows you to view USC’s settings.</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td>clear</td><td colspan="3">The counter clear command allows you to clear all counters.</td></tr>
<tr><td rowspan="2">refreshtime</td><td>show</td><td colspan="2">The refreshtime show command allows you to view the refresh time for the report.</td></tr>
<tr><td>set</td><td colspan="2">The refreshtime set command allows you to set the refresh time (in seconds) for the report.</td></tr>
<tr><td rowspan="5">setusc</td><td colspan="4">The counter setusc command allows you to configure NuTAP-311’s USC (Universal Stream Counter) settings. Please refer to the sections down below for detailed descriptions. Also, to view command lists for USC settings, you can input “counter help setusc”.</td></tr>
<tr><td rowspan="3">baseaddress</td><td colspan="3">The counter setusc [a0 | a1] [group=0 | group=1] baseaddress [da | sa | vid | mpls | dip | sip | dp | sp | vlancos | vid&vlancos] <value> command allows you to change the specific base address for NuTAP-311’s certain Network Port (A0/A1) and the USC group. Please refer to the table down below for command initial reference:</td></tr>
<tr><td colspan="3"><ul><li>DA: Destination Address</li><li>SA: Source Address</li><li>VID: VLAN ID</li><li>MPLS: Multi-Protocol Label Switch</li><li>DIP: Destination IP Address</li><li>SIP: Source IP Address</li><li>DP: Destination Port</li><li>SP: Source Port</li><li>VLANCOS: VLAN Class of Service</li><li>VID&VLANCOS: VLAN ID and VLAN Class of Service</li></ul></td></tr>
<tr><td colspan="3">For example, to set the USC in source IP address of USC group 0 for Network Port A0 to 192.168.1.1, please input the command “counter setusc a0 group=0 baseaddress sip 192.168.001.001”.</td></tr>
<tr><td rowspan="3">mode</td><td colspan="3">The setusc [a0 | a1] [group=0 | group=1] mode [normal | jitter] command allows to change the mode for NuTAP-311’s certain Network Port (A0/A1) and the USC group. There are two modes available here:</td></tr>
<tr><td colspan="3"><ul><li>Normal: The USC will run under normal mode.</li><li>Jitter: The USC will run under jitter mode.</li></ul></td></tr>
<tr><td colspan="3">For example, to set the mode of USC group 0 for Network Port A0 to normal, please input the command “counter setusc a0 group=0 mode normal”.</td></tr>
<tr><td>enable/disable</td><td colspan="3">The setusc [a0 | a1] [group=0 | group=1] [enable | disable] command allows you to enable/disable NuTAP-311’s certain Network Port (A0/A1) and the USC group. For example, to enable USC group 0 for Network Port A0, please input the command “counter setusc a0 group=0 enable”.</td></tr>
</table>

### C. NuTAP-311 HyperTerminal Command – mode

| Command Descriptions – mode | | |
|---|---|---|
| **mode** | **show** | The **mode show** command allows you to view NuTAP-311's redirect mode (**aggregation**, **segregation**, or **multi-mirror**) settings. |
| | **set** | The **mode set [aggregation \| segregation \| multimirror] <m0 \| m1>** command allows you to set NuTAP-311's redirect mode for **Monitor Port M0/M1**. For example, to set NuTAP-311 Monitor Port M0 to aggregation redirect mode, please input the command "**mode set aggregation m0**". |

### D. NuTAP-311 HyperTerminal Command – monitor

| Command Descriptions – monitor | | | |
|---|---|---|---|
| **monitor** | **show** | The **monitor show** command allows you to view header and media type for all NuTAP-311's ports (Network Port A0/A1 and Monitor Port M0/M1). | |
| | **header** | The **monitor [m0 \| m1 \| port=all] header [da \| sa \| id \| dip \| sip \| dport \| sport \| mtu] <Parameter>** command allows you to configure NuTAP-311's **Monitor Ports M0/M1**. The configuration options available includes: | |
| | | • **DA:** Destination Address<br>• **SA:** Source Address<br>• **ID:** ID<br>• **DIP:** Destination IP Address<br>• **SIP:** Source IP Address<br>• **DPORT:** Destination Port<br>• **SPORT:** Source Port<br>• **MTU:** Maximum Transmission Unit | |
| | | For example, to set NuTAP-311 Monitor Port M0's destination port to port 9, please input the command "**monitor m0 header dport 0009**". The formats for each available configuration option are listed down below: | |
| | | • **DA/SA:** XX-XX-XX-XX-XX-XX<br>• **ID:** XXXX<br>• **DIP/SIP:** XXX.XXX.XXX.XXX<br>• **DPORT/SPORT:** XXXX | |
| | | **mode** | The **monitor [m0 \| m1 \| port=all] header mode** command allows you to set the combinations of headers that will be added to packets to/from designated Monitor Port (**MAC**, **ID**, **Timestamp**, **IP**, **Port**, **Fragment**). For example, to add the header with ID and IP to packets to/from Monitor Port M0, please input the command "**monitor m0 header mode id+ip**" |
| | | **reset** | The **monitor [m0 \| m1 \| port=all] header reset** command allows you to reset all settings made to the specific Monitor Port. For example, to reset all settings done for Monitor Port M0, please input the command "**monitor m0 header reset**". |

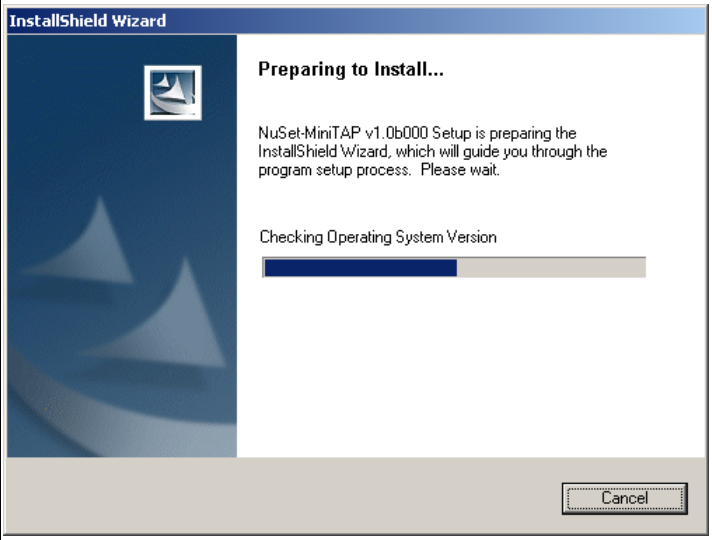
# 4. Installing/Uninstalling NuSet-MiniTAP


**NuSet-MiniTAP** is a GUI (graphic user interface) utility software for setting test criteria and system management. When **NuTAP-311** is connected with PC via its RJ45-to-USB cable, you can set test criteria, save/view testing results, and upgrade firmware/FPGA with NuSet-MiniTAP.

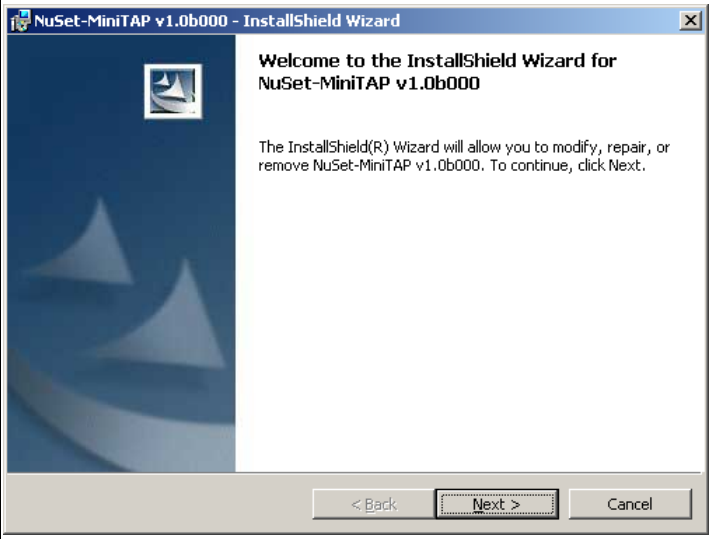
However, before using NuSet-MiniTAP's features and functions, you have to install it on your PC first.

NuTAP-311's driver is contained in NuSet-MiniTAP. The required drivers and NuSet-MiniTAP will be installed at the same time. Please note that DO NOT connect your NuTAP-311 to the PC before the installation.

Please follow the steps down below to install NuSet-MiniTAP.

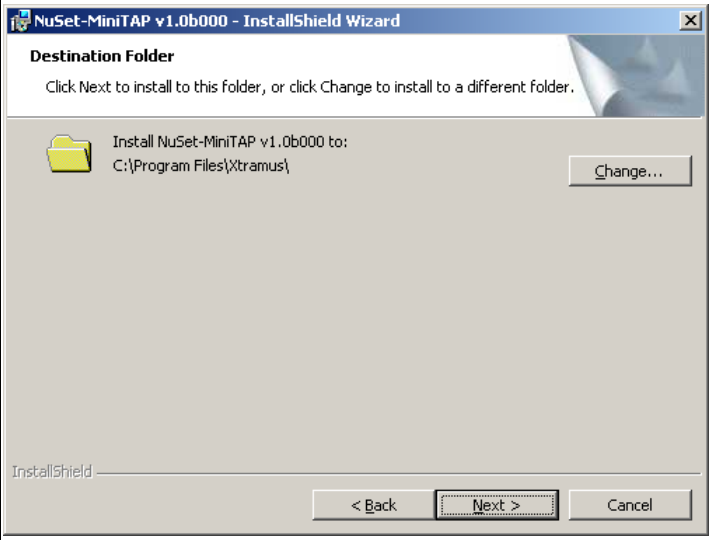
| **NuSet-MiniTAP Installation** | |
|---|---|
|  | 1. Double-click NuSet-MiniTAP installation program and start the installation process. |
|  | 2. InstallShield Wizard is starting to install NuSet-MiniTAP. If you would like to cancel installation, click "**Cancel**". |

## NuSet-MiniTAP Installation



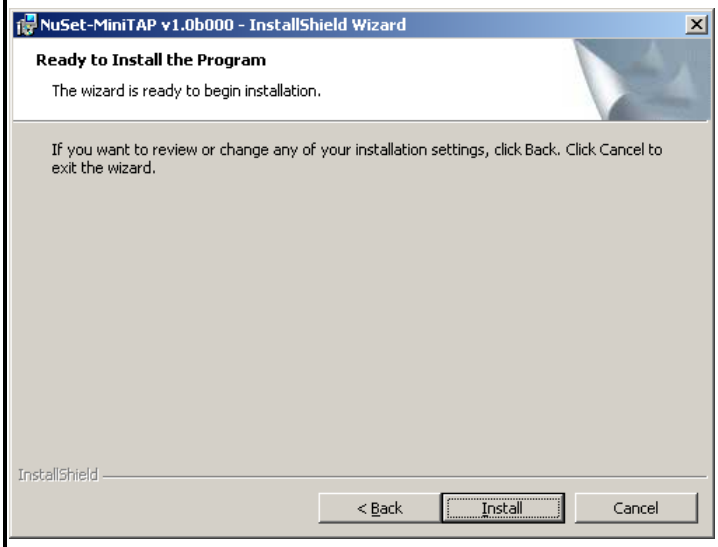

3. Click "**Next**" to continue installation.


4. Click "**I accept the terms in the license agreement**", and click "**Next**" to continue.

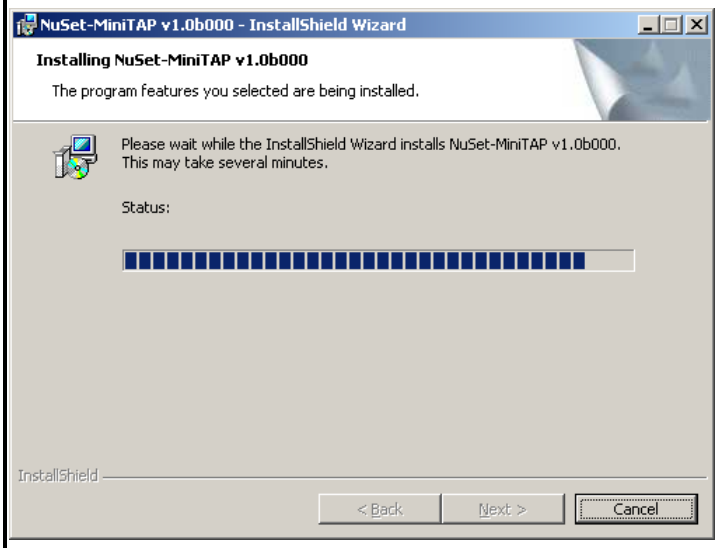



5. Click the **Change…** button to install the program to another folder, or click **Next** button to install the program into the default destination folder, and then continue next step. Click **Back** button to go back to the previous step to modify.

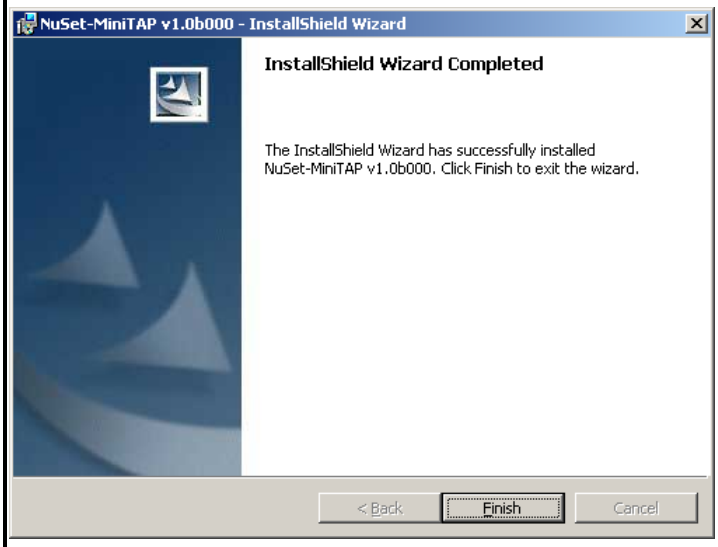
## NuSet-MiniTAP Installation




6. NuSet-MiniTAP InstallShield Wizard will start installing momentarily. Click **Install** button if the information is correct.



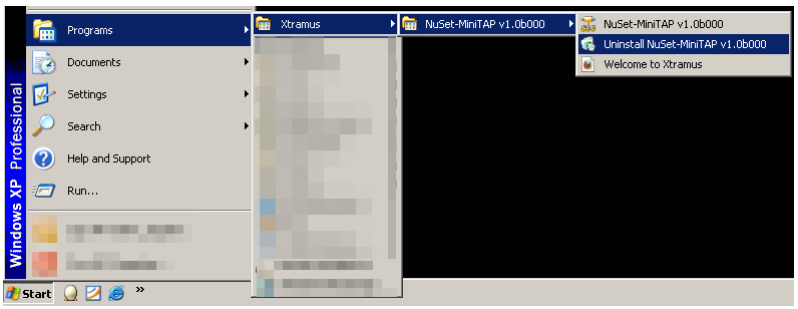

7. InstallShield Wizard is installing NuSet-MiniTAP.



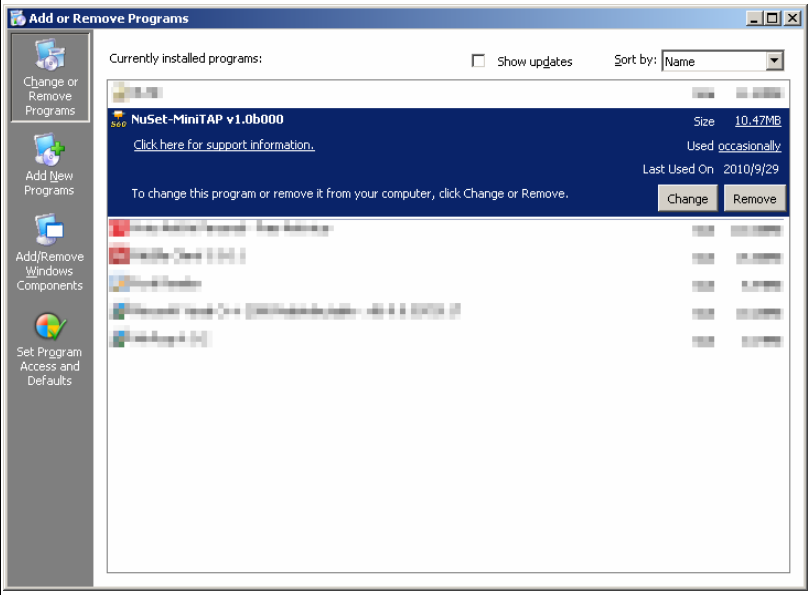

8. NuSet-MiniTAP installation completes. Click **Finish** button to exit.

To uninstall NuSet-MiniTAP, you can:

## NuSet-MiniTAP Un-installation




- Click **Start → Programs → Xtramus → NuSet-MiniTAP → Uninstall NuSet-MiniTAP**.

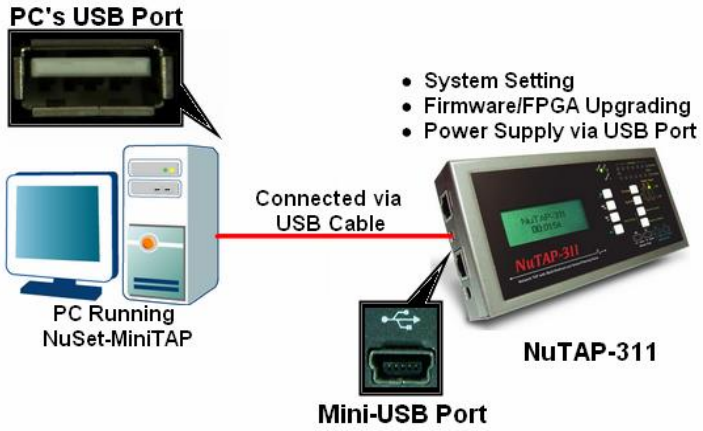



- Go to the **Control Panel**, choose **NuSet-MiniTAP** from installed program list, and click "**Remove**" to uninstall.

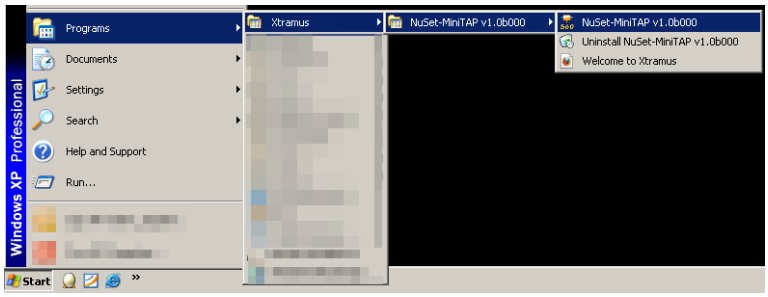
# 5. NuSet-MiniTAP Overview

## 5.1. Starting NuSet-MiniTAP

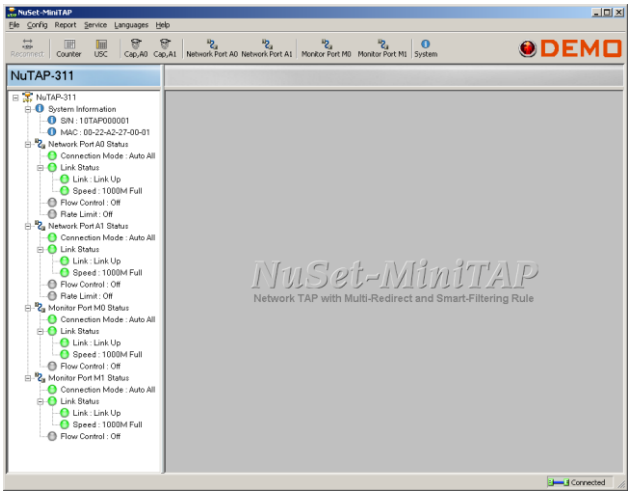
Before starting NuSet-MiniTAP, please be sure that your NuTAP-311 is properly connected to your PC. The figure down below is an example for connecting NuTAP-311 to PC via an RJ45-to-USB cable.



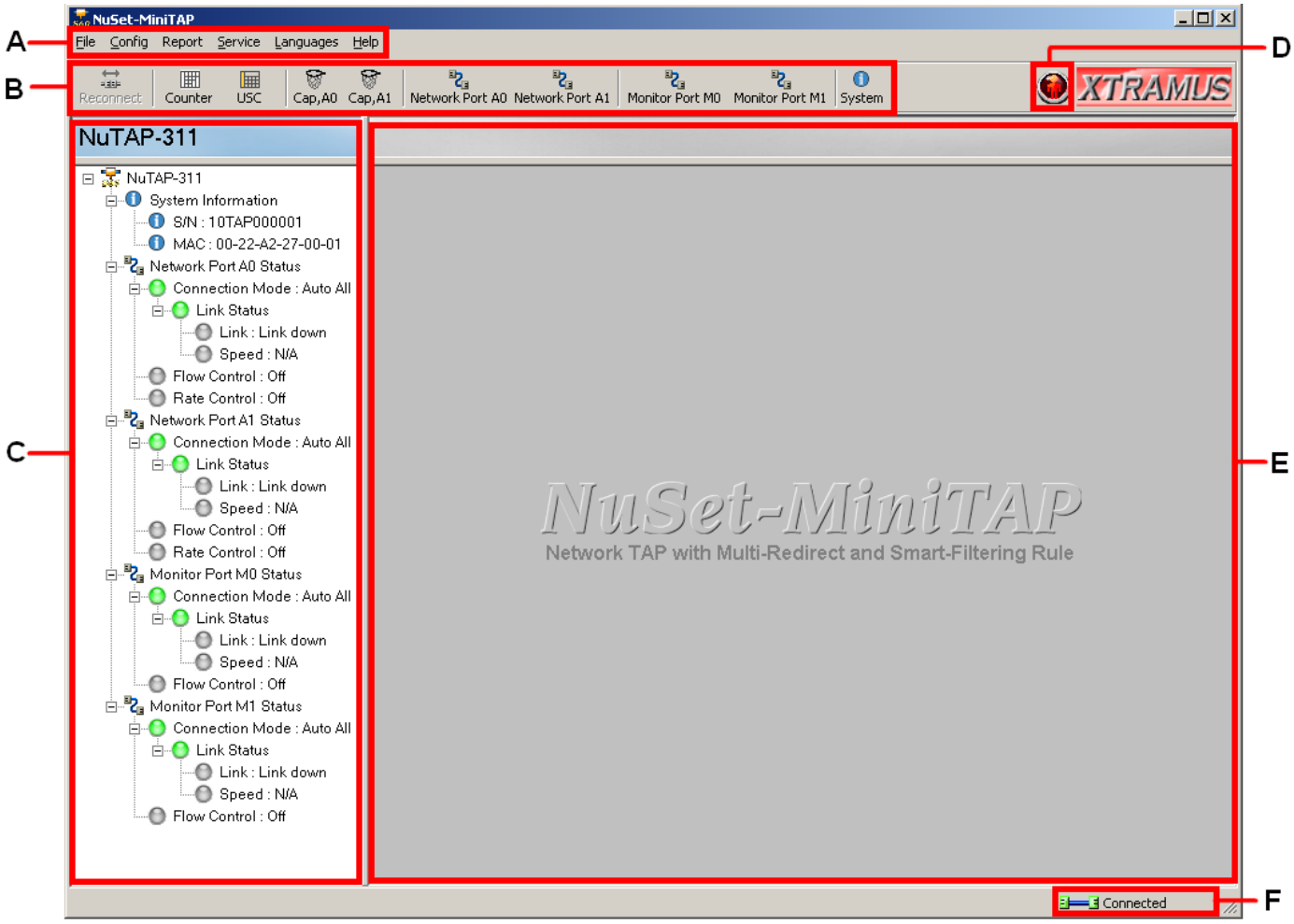

You can start NuSet-MiniTAP by:

| Starting NuSet-MiniTAP | |
|---|---|
|   | ➢ Double-click NuSet-MiniTAP icon located on your PC's desktop |
|   | ➢ Click **Start → Programs → Xtramus → NuSet-MiniTAP → NuSet-MiniTAP**. |

If your PC is not connected with NuTAP-311, you can still run NuSet-MiniTAP under **Demo Mode**. Almost all NuSet-MiniTAP's functions are available under **Demo Mode**. However, please note that **Demo Mode is for system demo purposes only**, and does not serve any testing purposes at all.



## 5.2. NuSet-MiniTAP Main Window Overview



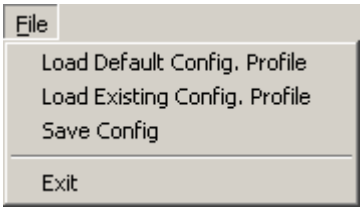

| NuTAP-S60_310 Utility Functions Overview | | |
|---|---|---|
| **A** | **Menu Bar** | The **Menu Bar** allows you to make settings about test criteria, view/save test log, change language displayed, and update firmware /FPGA. |
| **B** | **Quick Launch Buttons** | The **Quick Launch Buttons** allow you to reconnect your PC to NuTAP-311, open/save test logs, and switching **Main Display Screen** display mode. |
| **C** | **System Status Overview** | Status of Network Port A0/A1, Monitor Port M0/M1, and NuTAP-311 system overview. |
| **D** | **Test Running Status Icon** | This icon shows the test running status of NuSet-MiniTAP. |
| **E** | **Main Display Screen** | You can make detail configurations and view real-time testing diagrams on the **Main Display Screen**. |
| **F** | **USB Connection Status** | This icon shows the connection status between your PC and NuTAP-311. |

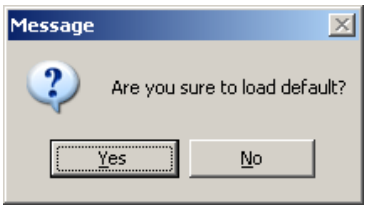
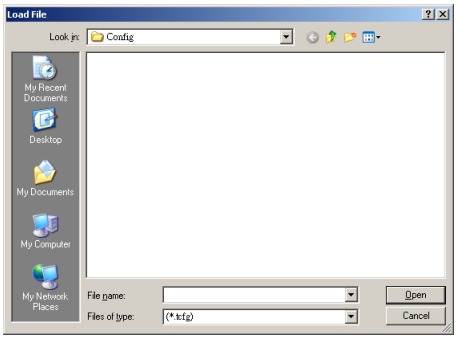
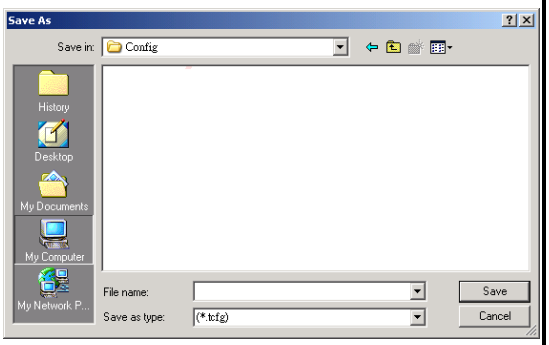
# 6. NuSet-MiniTAP Functions

## 6.1. Menu Bar

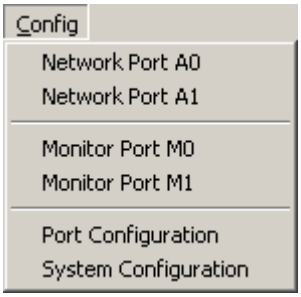

NuSet-MiniTAP's **Menu Bar** contains configuration options such as **File**, **Config**, **Report**, **Service**, **Languages**, and **Help**. Please refer to the sections down below for detail information regarding to each configuration option.

### 6.1.1. File

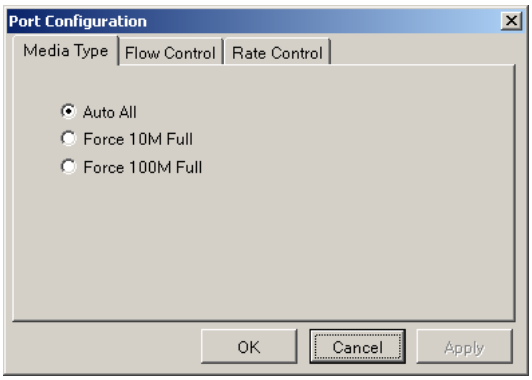


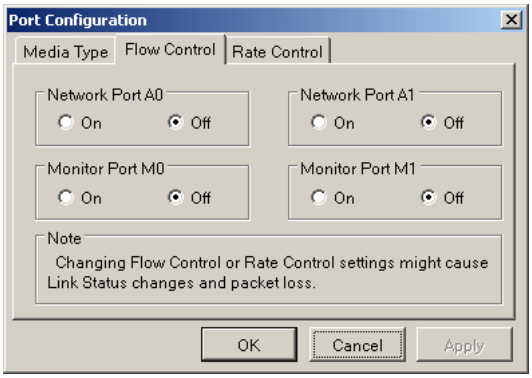

| Function Descriptions – File | | |
|---|---|---|
| **Load Default Config. Profile** | The **Load Default Config** function allows you to set all NuSet-MiniTAP's settings to default value. Click **YES** to load NuSet-MiniTAP's default value, or click **NO** to cancel. |   |
| **Load Existing Config. Profile** | Load a previously-saved configuration file and applies these settings to NuSet-MiniTAP.<br>All the configurations you've made will be saved as " *** .tcfg**" files. |   |
| **Save Config** | Save the current configuration as a " *** .tcfg**" file. All saved configuration files can be loaded with **Load Existing Config. Profile** function located on the **Menu Bar**. |   |
| **Exit** | A prompt pop-up window will ask if you are sure to exit NuSet-MiniTAP. Click **YES** to exit NuSet-MiniTAP, or click **NO** to cancel. | |

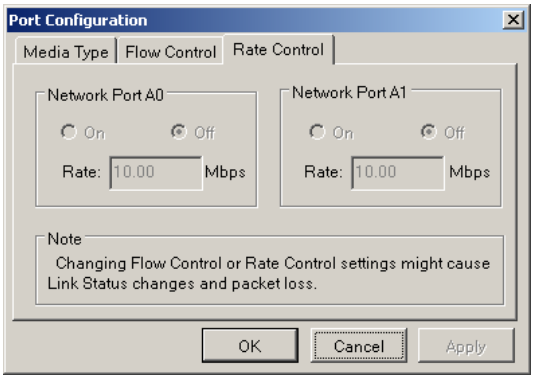
### 6.1.2. Config.

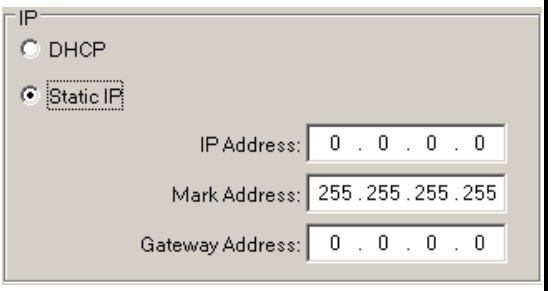



| Function Descriptions – Config. | |
|---|---|
| **Network Port A0/A1** | The **Network Port A0/A1** function located on the **Menu Bar** allows you to make settings regarding to **Network Port A0/A1** on the **Main Display Screen**. For more detail information, please refer to **6.5. Network Port Settings**. |
| **Monitor Port M0/M1** | The **Monitor Port A0/A1** function located on the **Menu Bar** allows you to make settings regarding to **Monitor Port A0/A1** on the **Main Display Screen**. For more detail information, please refer to **6.6. Monitor Port Settings**. |
| **Port Configuration** | You can make settings regarding to NuTAP-311's **Network Port A0/A1** and **Monitor Port M0/M1** with the **Port Configuration** function located on the **Menu Bar**.<br><br>You can set the connection rate for Network Ports and Monitor Ports with the **Media Type** menu tab.<br><br>➢ **Auto All:** Set all Network Ports and Monitor Ports as auto-negotiation.<br>➢ **Force 10M Full:** Set all Network Ports and Monitor Ports to 10M Full-duplex.<br>➢ **Force 100M Full:** Set all Network Ports and Monitor Ports to 100M Full-duplex.<br><br>When **Flow Control** is enabled, the transmitting rate will drop if traffic overflow occurs.<br><br>➢ **On:** Enable **Flow Control**.<br>➢ **Off:** Disable **Flow Control**.<br><br>Please note that before making **Rate Control** settings, Network Port A0/A1's **Flow Control** function must be enabled.<br><br>You can set the transmitting/receiving rate for Network Port A0/A1 if **Flow Control** is enabled.<br><br>➢ **On/Off:** Enable/Disable **Rate Control**.<br>➢ **Rate:** When **Rate Control** is enabled, you can set the transmitting/receiving rate for Network Port A0/A1. |

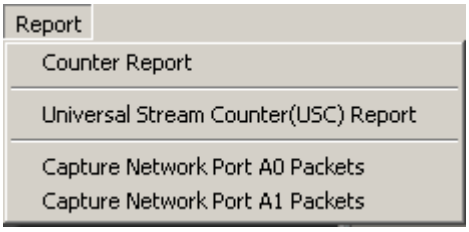


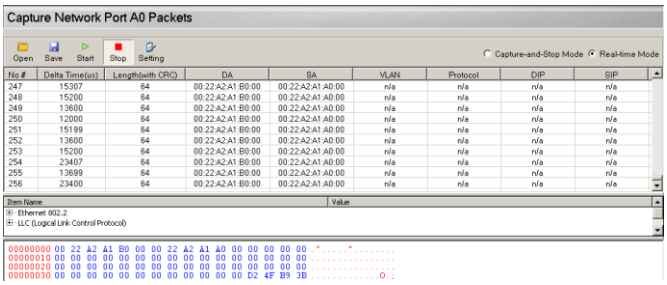
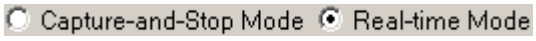
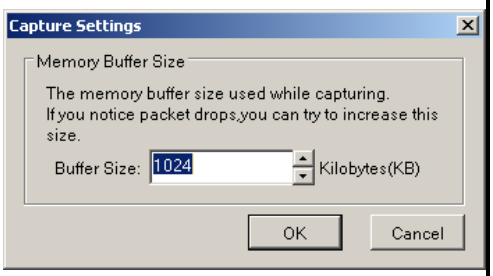



| Function Descriptions – Config. | | |
|---|---|---|
| **System Configuration** | You can set NuTAP-311's **IP** here in this field. These settings will be used when connecting NuTAP-311 to an existing network and access NuTAP-311 via configuration web pages. Click "**Apply**" located on the button-right to save/apply all the changes you've made.<br>**IP**<br>The **IP** section allows you to configure NuTAP-311's IP settings.<br>➢ **DHCP:** NuTAP-311 will acquire IP/Subnet Mask/Gateway addresses automatically from the network DHCP server.<br>➢ **Static IP:** Set NuTAP-311's IP/Subnet Mask/Gateway addresses manually. Please input the **IP Address**, **Mask Address**, and **Gateway Address** according to your network settings in the fields down below **Static IP**. |  |

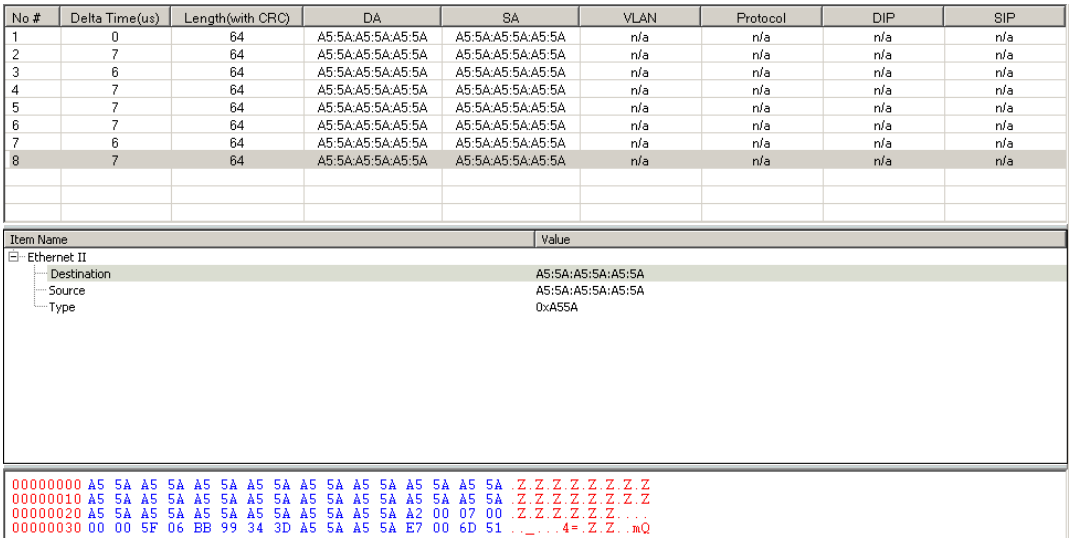
### 6.1.3. Report




| Function Descriptions – Report | |
|---|---|
| **Counter Report** | The **Counter Report** button located on the **Quick Launch Buttons** allows you to view Network Ports and Monitor Ports' counter reports and charts on the **Main Display Screen**. You can save the test statistics here as well. For more detail information, please refer to **6.7. Counter Report**. |
| **Universal Stream Counter (USC) Report** | Each of NuTAP-311's Network Port supports two sets of **Universal Stream Counter (USC)**. The **Universal Stream Counter (USC) Report** function located on the **Menu Bar** allows you to view USC statistics on the **Main Display Screen**. You can save the USC statistics here as well. For more detail information, please refer to **6.8. Universal Stream Counter (USC) Report**. |
| **Capture Network Port A0/A1 Packets** |  <br>The **Capture Network Port A0/A1 Packets** function located on the **Menu Bar** allows you to capture packets flowing through **Network Port A0/A1**. NuSet-MiniTAP has two different modes available for capturing packets:<br>  <br>➢ **Capture-and-Stop Mode:** NuSet-MiniTAP will capture and store packets in NuTAP-311's memory buffer. The captured packets will be displayed when you stop packet capturing. Please note that only **8** packets will be stored to the memory buffer at the same time, and old packets stored in the memory buffer will be replaced by new captured packets.<br>➢ **Real-time Mode:** NuSet-MiniTAP will capture all packets that meet the criteria, and display them in a real-time fashion.<br>  <br>You can control packet capturing with the control buttons located above.<br>➢ **Open:** Open a " ***** **.pcap**" file and view captured packets with NuSet-MiniTAP.<br>➢ **Save:** Save the captured packets as a file in the format of " ***** **.pcap**".<br>➢ **Start/Stop:** Start/Stop packet capturing.<br>➢ **Setting:** A **Capture Settings** window will pop up, allowing you to set memory buffer size (**KB**).<br>  |

## Function Descriptions – Report

**Capture Network Port A0/A1 Packets (Contd.)**

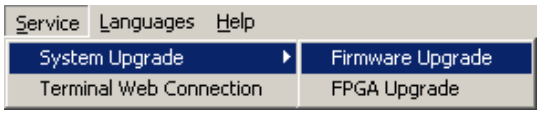
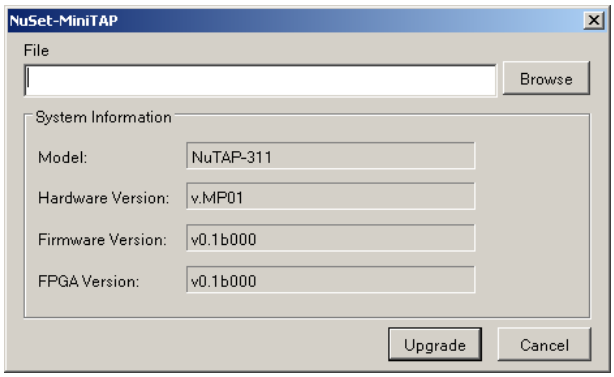
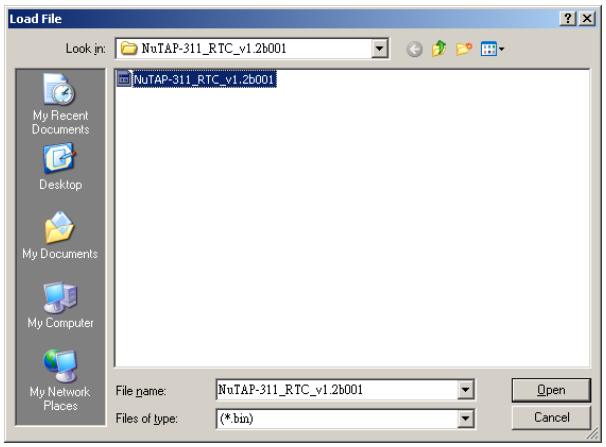
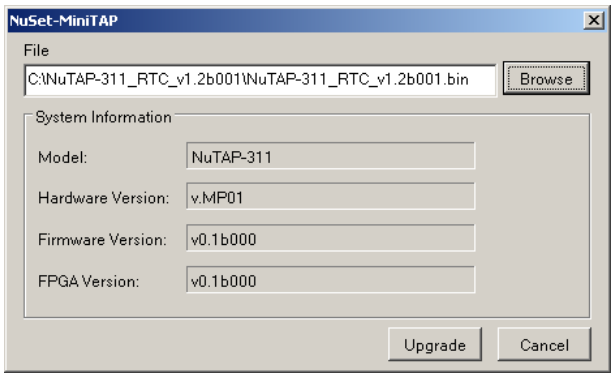


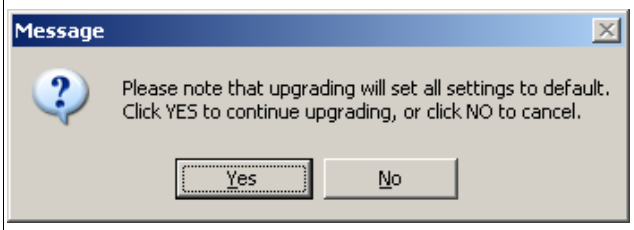
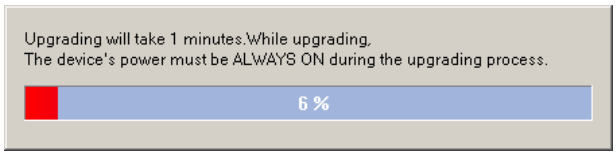
| No # | Delta Time(us) | Length(with CRC) | DA | SA | VLAN | Protocol | DIP | SIP |
|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 64 | A5:5A:A5:5A:A5:5A | A5:5A:A5:5A:A5:5A | n/a | n/a | n/a | n/a |
| 2 | 7 | 64 | A5:5A:A5:5A:A5:5A | A5:5A:A5:5A:A5:5A | n/a | n/a | n/a | n/a |
| 3 | 6 | 64 | A5:5A:A5:5A:A5:5A | A5:5A:A5:5A:A5:5A | n/a | n/a | n/a | n/a |
| 4 | 7 | 64 | A5:5A:A5:5A:A5:5A | A5:5A:A5:5A:A5:5A | n/a | n/a | n/a | n/a |
| 5 | 7 | 64 | A5:5A:A5:5A:A5:5A | A5:5A:A5:5A:A5:5A | n/a | n/a | n/a | n/a |
| 6 | 7 | 64 | A5:5A:A5:5A:A5:5A | A5:5A:A5:5A:A5:5A | n/a | n/a | n/a | n/a |
| 7 | 6 | 64 | A5:5A:A5:5A:A5:5A | A5:5A:A5:5A:A5:5A | n/a | n/a | n/a | n/a |
| 8 | 7 | 64 | A5:5A:A5:5A:A5:5A | A5:5A:A5:5A:A5:5A | n/a | n/a | n/a | n/a |



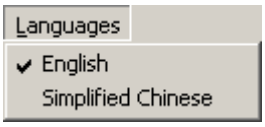
Fields down below display information including captured packets' **Delta Time (µs)**, **Packet Length (with CRC)**, **DA (Destination Address)**, **SA (Source Address)**, **VLAN**, **Protocol**, **DIP (Destination IP Address)**, and **SIP (Source IP Address)**. Also, you can view the content of the captured packets in the bottom field.

### 6.1.4. Service


| Function Descriptions – Service | |
|---|---|
| **System Upgrade** | The **System Upgrade** function located on the **Menu Bar** allows you to upgrade NuTAP-311's firmware and FPGA. The following section will demonstrate how to upgrade NuTAP-311's firmware with NuSet-MiniTAP. The processes for upgrading firmware and FPGA are quite the same and can be related. |
| |  <br>1. Please click **Service → System Upgrade → Firmware Upgrade** on the **Menu Bar**. If you want to upgrade FPGA, please choose **FPGA Upgrade**. |
| |  <br>2. A **NuSet-MiniTAP** window will pop up. Please click the **Browse** button. |
| |  <br>3. A **Load File** window will pop up. Please choose the firmware file saved on your PC. The firmware/FPGA file should be in the format of " *** .bin**". Click **Open** after you've chosen the file. |
| |  <br>4. Click **Upgrade** button to start upgrading NuTAP-311's firmware. |

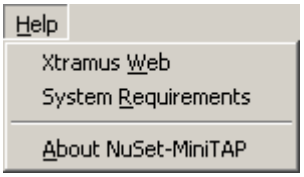
| Function Descriptions – Service | | |
|---|---|---|
| **System Upgrade (Contd.)** |  | 5. Please note that the upgrading process will set all settings to default. Click **YES** to continue the upgrading process. |
| |  | 6. NuSet-MiniTAP will start upgrading firmware. Please note that during this process, NuTAP-311's power must be ALWAYS on. |
| |  | 7. Upgrade complete! NuTAP-311 will reboot after upgrading firmware. |
| **Terminal Web Connection** | The **Terminal Web Connection** function will open your web browser and connect to NuTAP-311's configuration webpage. | |

### 6.1.5. Language




| Function Descriptions – Language | |
|---|---|
| **English/ Chinese Simplified** | NuSet-MiniTAP has **2** different languages for its UI available. You can set the language of UI to either **English** or **Simplified Chinese**. |

### 6.1.6. Help




| Help | |
|---|---|
| **Xtramus Web** | Open your default web browser and access Xtramus Website (www.xtramus.com). |
| **System Requirements** | A "**System Requirements**" window will pop up and show the requirements for your PC and the FPGA/Firmware of NuTAP-311.<br>➢ **OK:** Click this button to exit the "**System Requirements**" pop-up window. |
| **About NuSet-MiniTAP** | An "**About**" window will pop up and show detailed system information. |

## 6.2. Quick Launch Buttons


These **Quick Launch Buttons** allow you to reconnect NuTAP-311, view counter/USC (Universal Stream Counter) statistics and chart, set packet capturing criteria, and make Network Port A0/A1, Monitor Port A0/A1 and system configurations. Please refer to the section down below for more detail descriptions regarding to **Quick Launch Buttons**.

### 6.2.1. Reconnect

| **Function Descriptions – Reconnect** | |
|---|---|
| Reconnect | If the connection between your PC and NuTAP-311 is down, a "**Disconnected**" icon Disconnected will be shown in "**System Connection Status**".<br><br>Press **Reconnect** button Reconnect to re-establish the connection between your PC and NuTAP-311. If the connection has been established successfully, a message window will pop up, and the "**System Connection Status**" will be shown as "**Connected**" Connected. |

### 6.2.2. Counter

| **Function Descriptions – Counter** | |
|---|---|
| Counter | The **Counter Report** button located on the **Quick Launch Buttons** allows you to view Network Ports and Monitor Ports' counter reports and charts on the **Main Display Screen**. You can save the test statistics here as well. For more detail information, please refer to **6.7. Counter Report**. |

### 6.2.3. USC (Universal Stream Counter)

| **Function Descriptions – USC** | |
|---|---|
| USC | Each of NuTAP-311's Network Port supports two sets of **Universal Stream Counter (USC)**. The **USC** button located on the **Quick Launch Buttons** allows you to view USC statistics on the **Main Display Screen**. You can save the USC statistics here as well. For more detail information, please refer to **6.8. Universal Stream Counter (USC) Report**. |

### 6.2.4. Cap, A0/A1

| **Function Descriptions – Cap, A0/A1** | |
|---|---|
| Cap,A0 Cap,A1 | The **Cap, A0/A1** buttons located on the **Quick Launch Buttons** allow you to capture packets flowing through **Network Port A0/A1**. For detail description regarding to this function, please refer to **6.1.3. Report**, **Capture Network Port A0/A1 Packets**. |

### 6.2.5. Network Port A0/A1

| Function Descriptions – Network Port A0/A1 | |
|---|---|
|  <br>  | The **Network Port A0/A1** buttons located on the **Quick Launch Buttons** allow you to make settings regarding to **Network Port A0/A1** on the **Main Display Screen**. For more detail information, please refer to **6.5. Network Port Settings**. |

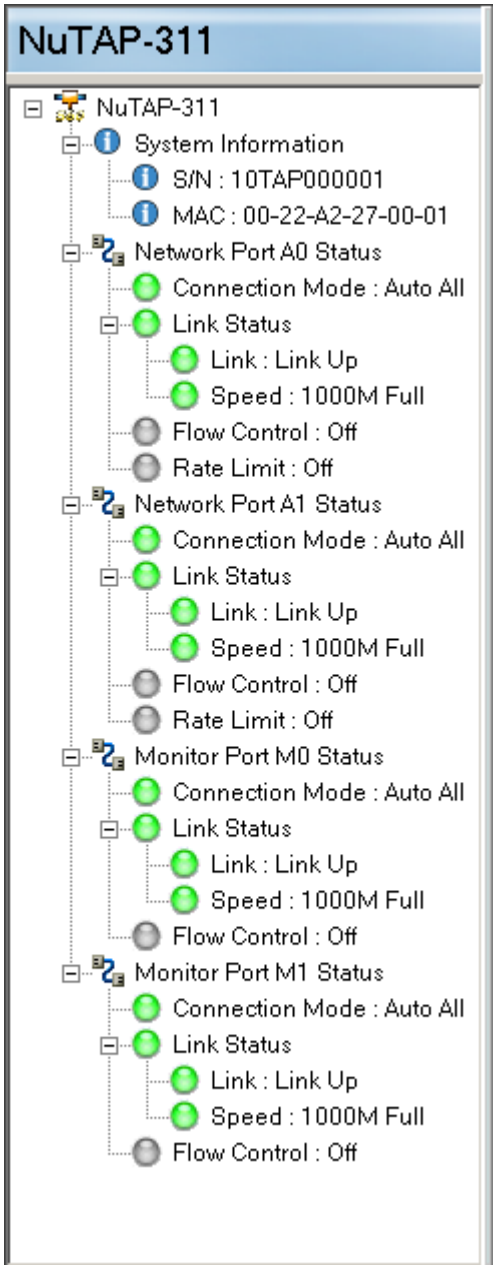
### 6.2.6. Monitor Port M0/M1

| Function Descriptions – Monitor Port M0/M1 | |
|---|---|
|  <br>  | The **Monitor PortM0/M1** buttons located on the **Quick Launch Buttons** allow you to make settings regarding to **Monitor Port M0/M1** on the **Main Display Screen**. For more detail information, please refer to **6.6. Monitor Port Settings**. |

### 6.2.7. System

| Function Descriptions – System | |
|---|---|
|  | The **System** button located on the **Quick Launch Buttons** allows you to set NuTAP-311's **IP** here in this field. These settings will be used when connecting NuTAP-311 to an existing network and access NuTAP-311 via configuration web pages. For detail description regarding to this function, please refer to **6.1.2. Config**, **System Configuration**. |

## 6.3. System Status Overview




The **System Status Overview** allows you to view NuTAP-311's system information, Network Port A0/A1 status, and Monitor Port M0/M1 status. You can unfold the list with the ⊞ button, and fold the list with the ⊟ button.

## 6.4. Test Running Status Icon

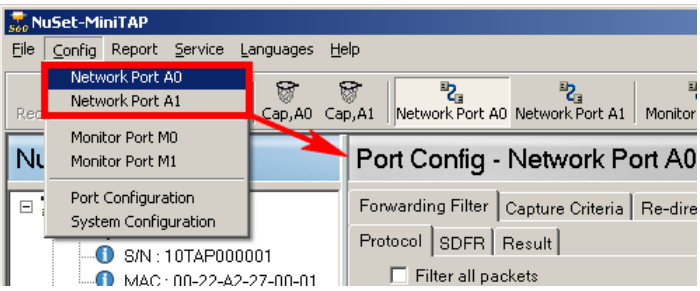
T he **Test Running Status Icon** indicates if there's a test running.

| Test Running Status Icon | |
|---|---|
|  | No test is underway |
|  | Test is running |

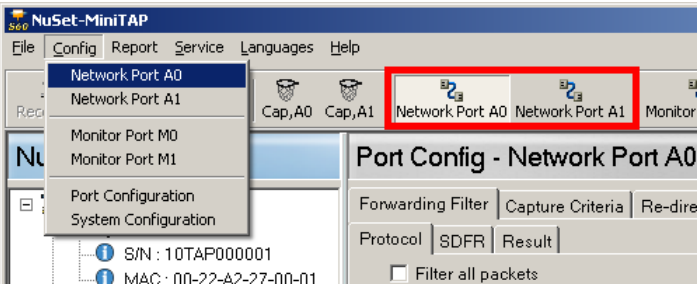
## 6.5. Network Port Setting

You can configure filtering/capture criteria and pattern check for Network Port A0/A1 in the **Port Config – Network Port** screen. There are two ways to access **Port Config – Network Port**:

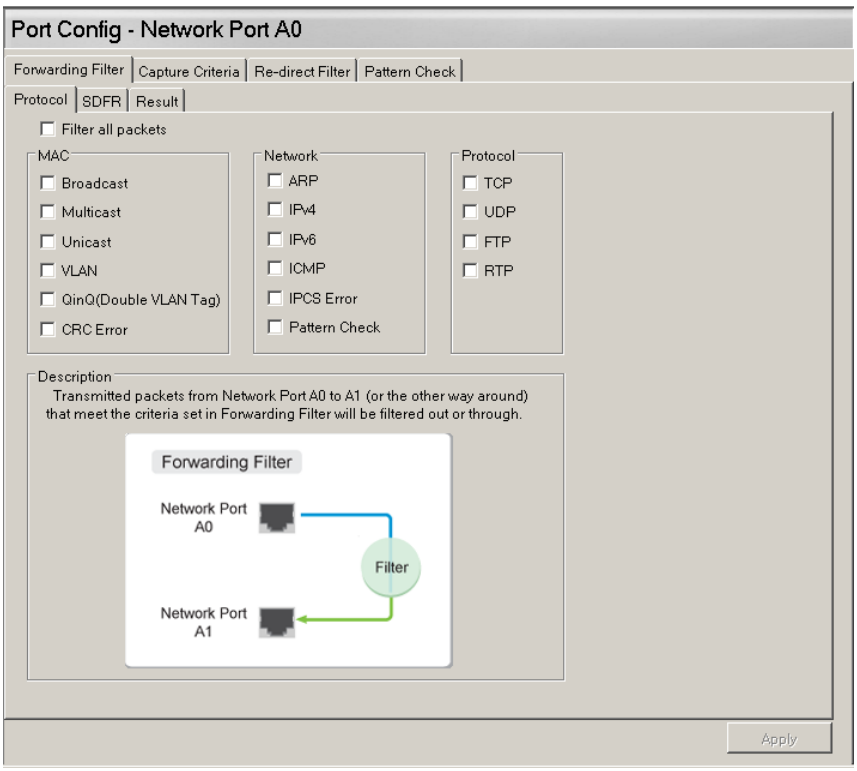
**Accessing Port Config – Network Port**




- Click **Network Port A0/A1** located on **Config** in the **Menu Bar**.

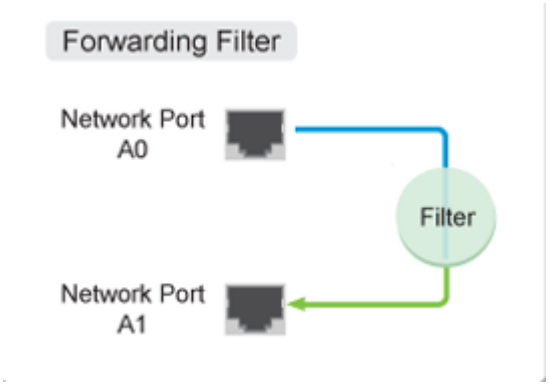



- Click the **Network Port A0/A1** button located on **Quick Launch Buttons**.



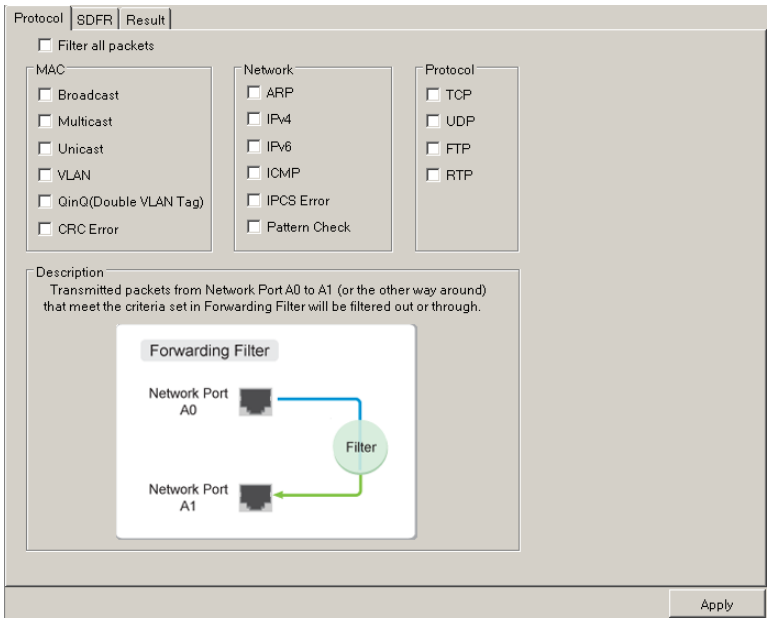

NuSet-MiniTAP's Network Port settings include **Forwarding Filter**, **Capture Criteria**, **Re-direct Filter**, and **Pattern Check**. Please see the sections down below for detail descriptions.

### 6.5.1. Forwarding Filter



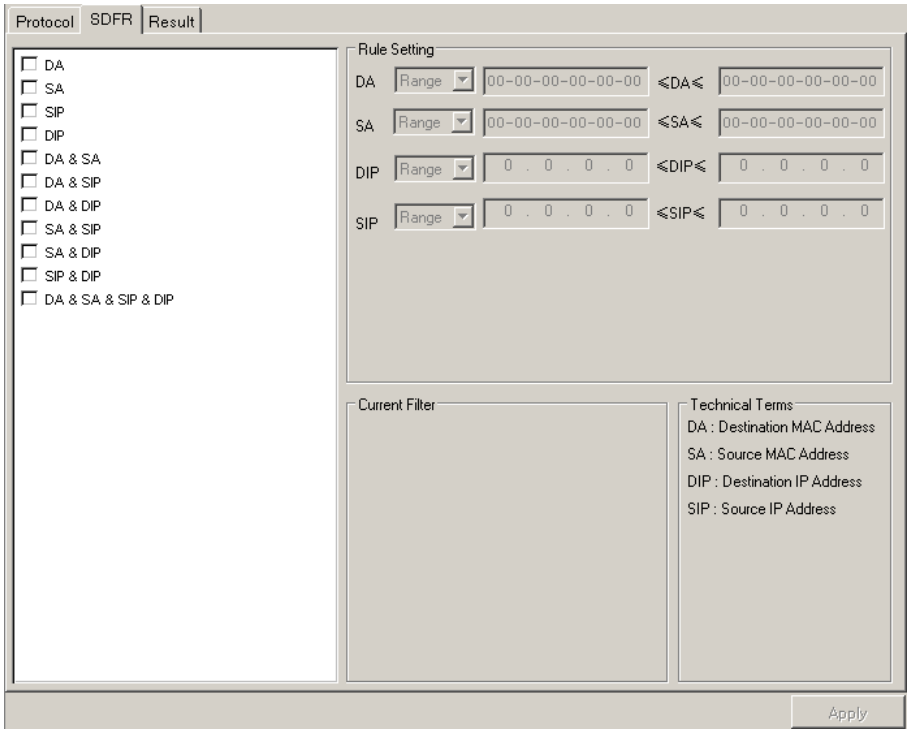

With **Forwarding Filter**, NuTAP-311 will transmit packets from Network Port A0 to A1 (or the other way around) that meet the criteria set in **Forwarding Filter** will be filtered out or through. The **Forwarding Filter** setting screen contains three tab-menus: **Protocol**, **SDFR** (Self-Discover Filtering Rules), and **Result**.

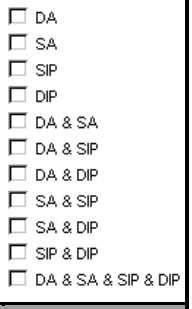
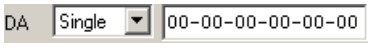
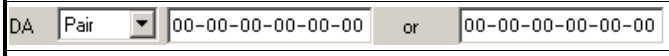
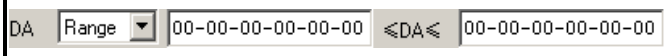
#### A. Forwarding Filter – Protocol



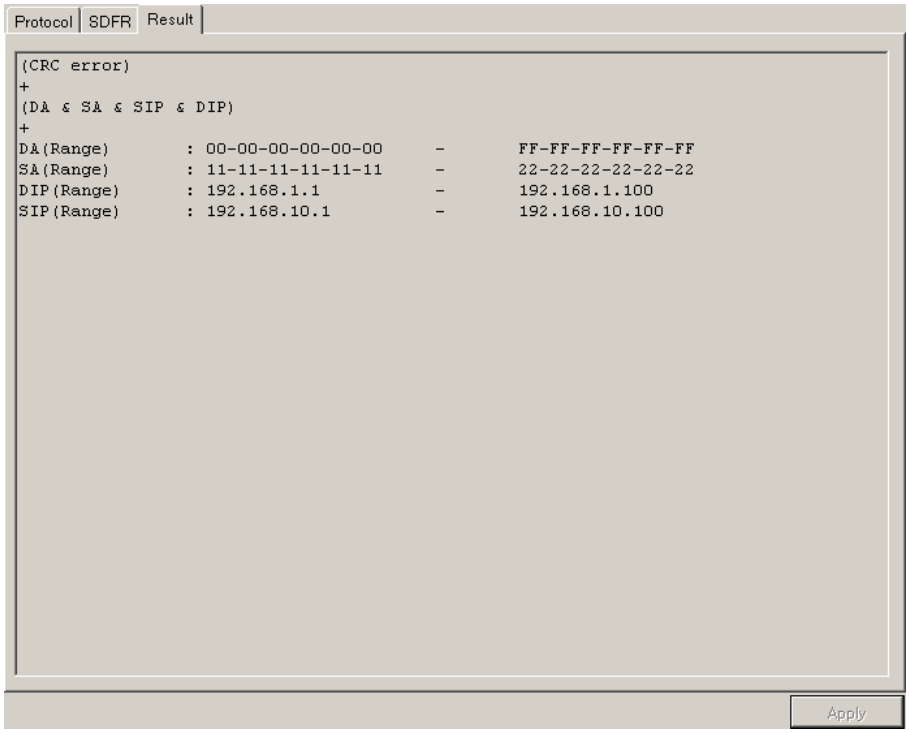

| **Protocol – Filter All Packets** | | | |
|---|---|---|---|
| Click the **Filter all packets** check box to filter all packets. | | | |
| **Protocol – MAC** | | | |
| **Broadcast**<br>**VLAN** | **Multicast**<br>**QinQ (Double VLAN TAG)** | | **Unicast**<br>**CRC Error** |
| **Protocol – Network** | | | |
| **ARP**<br>**ICMP** | **IPv4**<br>**IPCS Error** | | **IPv6**<br>**Pattern Check** |
| **Protocol – Protocol** | | | |
| **TCP** | **UDP** | **FTP** | **RTP** |
| **Protocol – Button** | | | |
| Apply | **Apply:** Apply and save the changes you've made on this page. After making any settings on this page, you must click the **Apply** button or all changes will be lost. | | |

## B. Forwarding Filter – SDFR



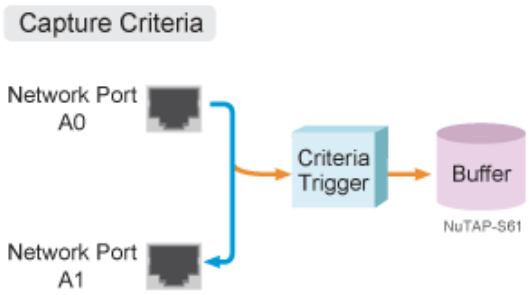

| **SDFR** |
|---|
| **SDFR (Self-Discover Filtering Rules)** is a technology that makes packet capturing/filtering over Ethernet easy and convenient. SDFR parameters include filter of Layer 2 Destination MAC Address (**DA**), Source MAC Address (**SA**), Layer 3 Destination IP Address (**DIP**), and Source IP Address (**SIP**). Each filter is independent and can be activated in any combinations. |
| **SDFR – Choosing SDFR Parameters** |
| You can choose the criteria with the check boxes. The SDFR parameters available here includes:<br>➢ **DA:** Destination MAC Address<br>➢ **SA:** Source MAC Address<br>➢ **DIP:** Destination IP Address<br>➢ **SIP:** Source IP Address<br>As mentioned above, each parameter is independent and can be activated in any combinations of **DA**, **SA**, **SIP**, **DIP**, **DA & SA**, **DA & SIP**, **DA & DIP**, **SA & SIP**, **SA & DIP**, **SIP & DIP**, and **DA & SA & SIP &DIP**.<br>  |
| **SDFR – Rule Setting** |
| The **Rule Setting** field allows you to set and input the value of **DA**, **SA**, **DIP**, and **SIP**. The value of SDFR parameters can be set as **Single**, **Pair**, and **Range**. The following descriptions will use **DA** as example. |
|  **Single:** A single value will be used as SDFR parameter. |
|  **Pair:** Two values will be used as SDFR parameters. |
|  **Range:** Values within the range of the two values set here will be used as SDFR parameters. |
| **SDFR – Current Filter/Technical Terms** |
| The **Current Filter** field displays the settings you've made, while the **Technical Terms** field displays the explanations for **DA**, **SA**, **DIP**, and **SIP**. |
| **SDFR – Button** |
|  **Apply:** Apply and save the changes you've made on this page. After making any settings on this page, you must click the **Apply** button or all changes will be lost. |

### C. Forwarding Filter – Result



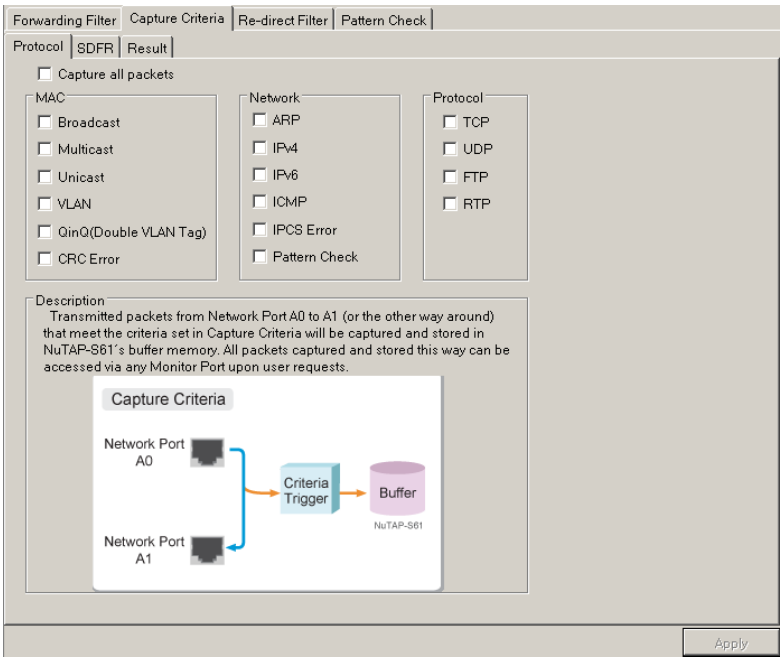

| **Result** |
| --- |
| The **Result** page will display the settings you've made in **Protocol** and **SDFR** pages. |

### 6.5.2. Capture Criteria



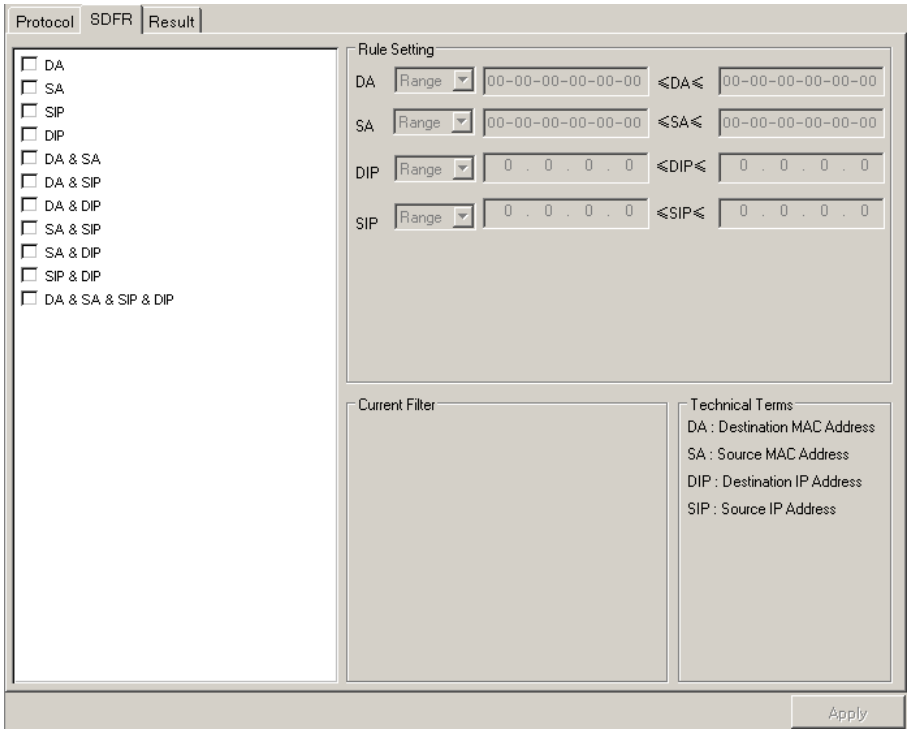

With **Capture Criteria**, transmitted packets from NuTAP-311's Network Port A0 to A1 (or the other way around) that meet the criteria set in Capture Criteria will be captured and stored in NuTAP-311's buffer memory. All packets captured and stored this way can be accessed via any Monitor Port upon user requests.

#### A. Capture Criteria – Protocol




| **Protocol – Capture All Packets** | | | |
|---|---|---|---|
| Click the **Capture All Packets** check box to capture all packets. | | | |
| **Protocol – MAC** | | | |
| **Broadcast**<br>**VLAN** | **Multicast**<br>**QinQ (Double VLAN TAG)** | | **Unicast**<br>**CRC Error** |
| **Protocol – Network** | | | |
| **ARP**<br>**ICMP** | **IPv4**<br>**IPCS Error** | | **IPv6**<br>**Pattern Check** |
| **Protocol – Protocol** | | | |
| **TCP** | **UDP** | **FTP** | **RTP** |
| **Protocol – Button** | | | |
| Apply | **Apply:** Apply and save the changes you've made on this page. After making any settings on this page, you must click the **Apply** button or all changes will be lost. | | |

### B. Capture Criteria – SDFR

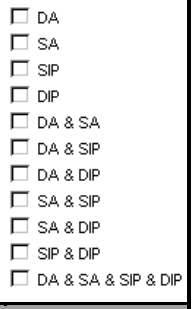



**SDFR**

**SDFR (Self-Discover Filtering Rules)** is a technology that makes packet capturing/filtering over Ethernet easy and convenient. SDFR parameters include filter of Layer 2 Destination MAC Address (**DA**), Source MAC Address (**SA**), Layer 3 Destination IP Address (**DIP**), and Source IP Address (**SIP**). Each filter is independent and can be activated in any combinations.

**SDFR – Choosing SDFR Parameters**

You can choose the criteria with the check boxes. The SDFR parameters available here includes:

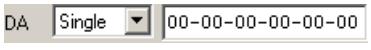



- **DA:** Destination MAC Address
- **SA:** Source MAC Address
- **DIP:** Destination IP Address
- **SIP:** Source IP Address

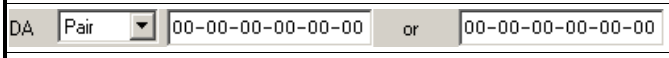
As mentioned above, each parameter is independent and can be activated in any combinations of **DA**, **SA**, **SIP**, **DIP**, **DA & SA**, **DA & SIP**, **DA & DIP**, **SA & SIP**, **SA & DIP**, **SIP & DIP**, and **DA & SA & SIP &DIP**.

**SDFR – Rule Setting**

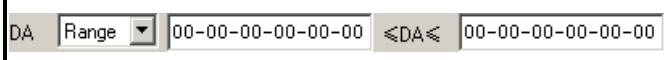
The **Rule Setting** field allows you to set and input the value of **DA**, **SA**, **DIP**, and **SIP**. The value of SDFR parameters can be set as **Single**, **Pair**, and **Range**. The following descriptions will use **DA** as example.




**Single:** A single value will be used as SDFR parameter.




**Pair:** Two values will be used as SDFR parameters.




**Range:** Values within the range of the two values set here will be used as SDFR parameters.

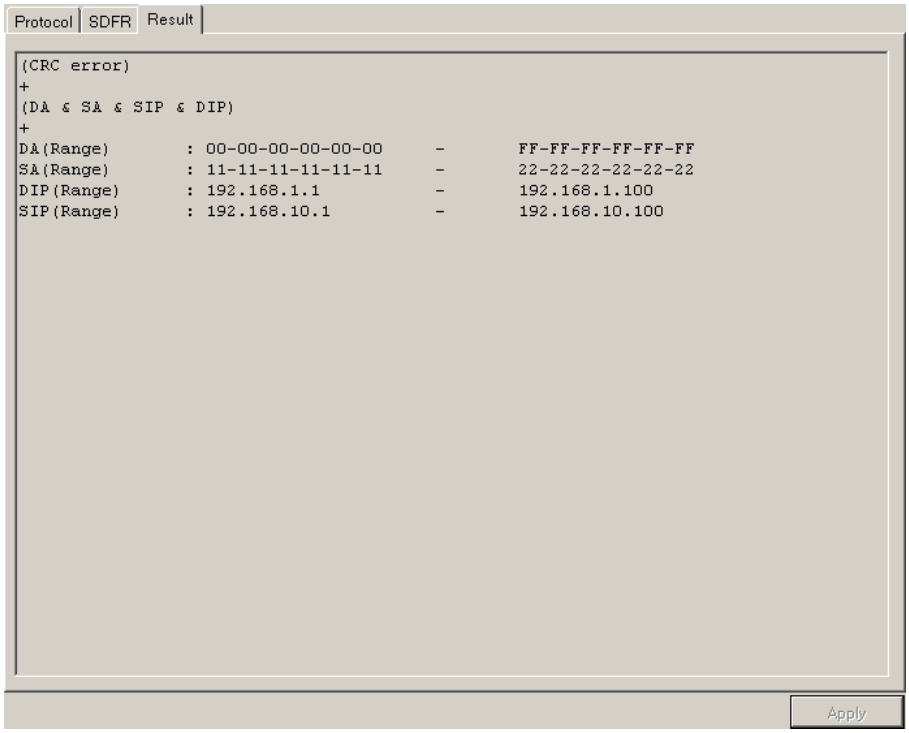
**SDFR – Current Filter/Technical Terms**

The **Current Filter** field displays the settings you've made, while the **Technical Terms** field displays the explanations for **DA**, **SA**, **DIP**, and **SIP**.

**SDFR – Button**

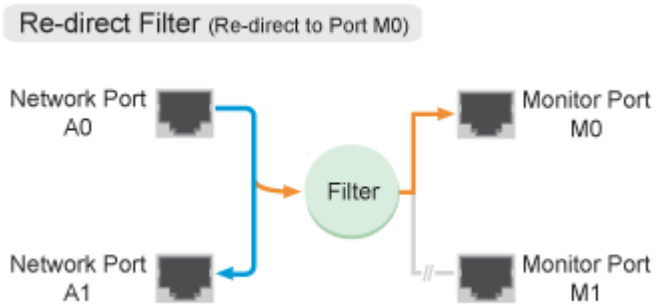

**Apply:** Apply and save the changes you've made on this page. After making any settings on this page, you must click the **Apply** button or all changes will be lost.

### C. Capture Criteria – Result

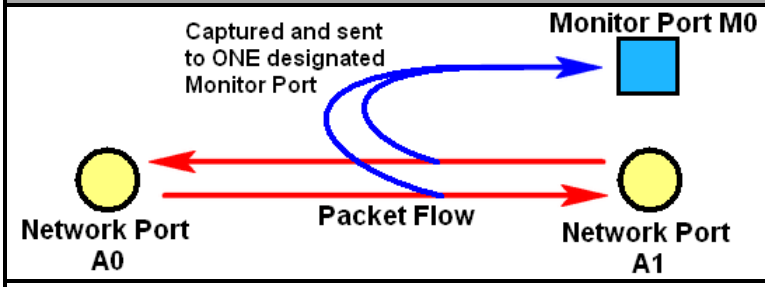
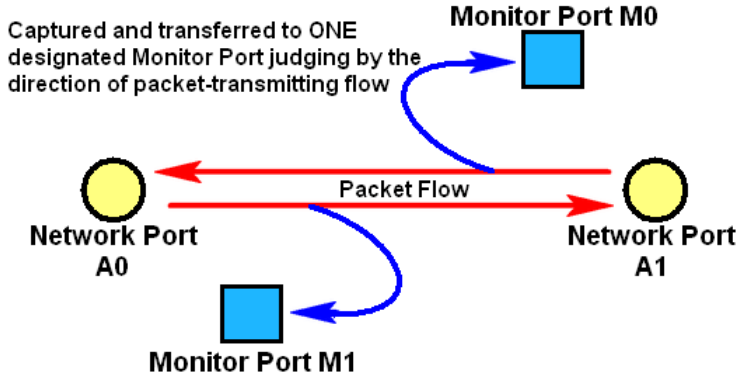
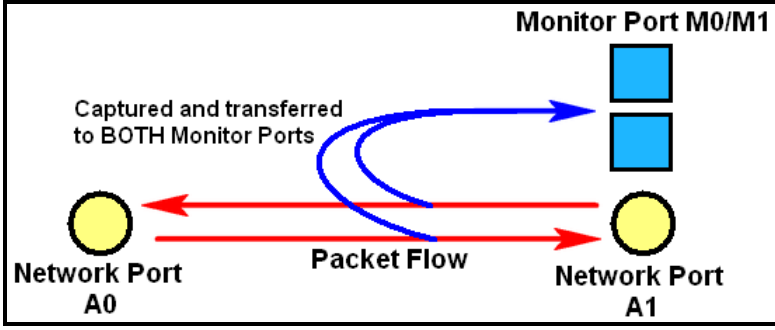



| **Result** |
| --- |
| The **Result** page will display the settings you've made in **Protocol** and **SDFR** pages. |

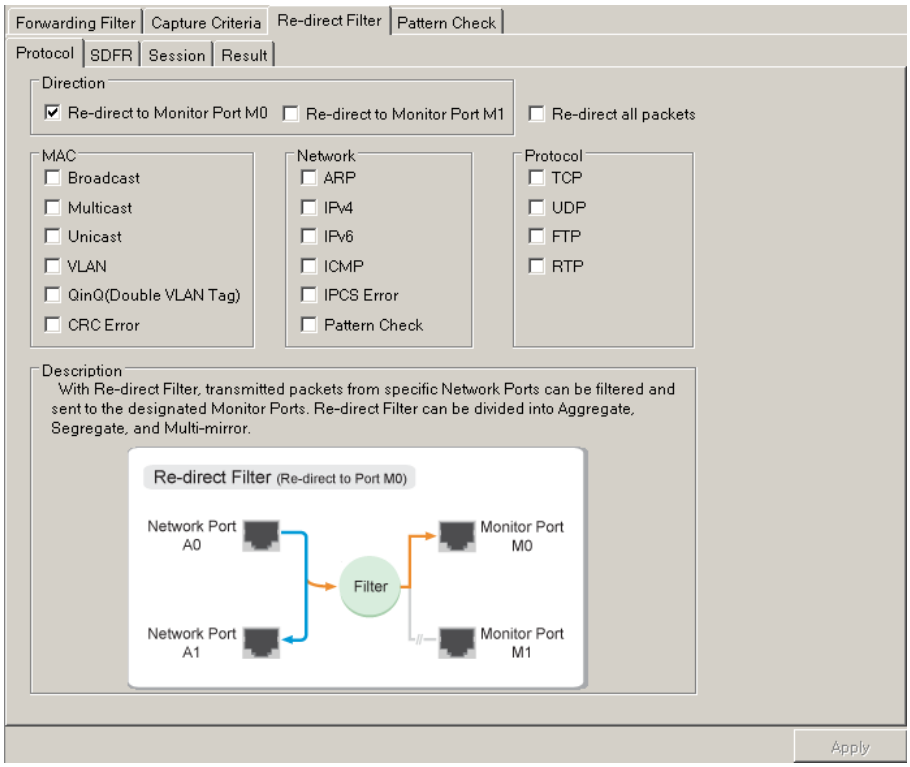
### 6.5.3. Re-Direct Filter




With **Re-Direct Filter**, transmitted packets from specific **Network Ports** can be filtered and sent to the designated **Monitor Ports**. Re-Direct Filter can be divided into **Aggregate**, **Segregate**, and **Multi-Mirror**.

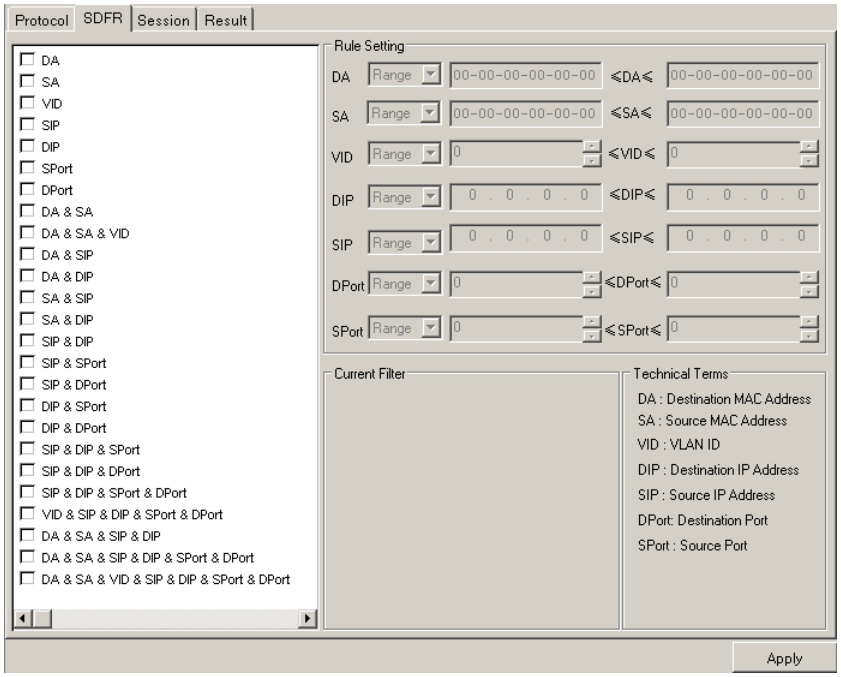
| Re-Direct Filter Mode | |
|---|---|
|  | **Aggregate:** Transmitted packets from Network Port A0 to A1 (or the other way around) that meet the criteria set in Re-Direct Filter will be captured and transferred to ONE designated Monitor Port. |
|  | **Segregate:** Transmitted packets between Network Port A0 and A1 that meet the criteria set in Re-Direct Filter will be captured and transferred to ONE designated Monitor Port judging by the direction of packet-transmitting flow (A0 → A1 or A1 → A0). |
|  | **Multi-Mirror:** Transmitted packets from Network Port A0 to A1 (or the other way around) that meet the criteria set in Re-Direct Filter will be captured and transferred to **BOTH** Monitor Ports. |

### A. Re-Direct Filter – Protocol




| **Protocol – Direction** |
|---|
| The **Direction** field allows you to set the direction of the packet flow.<br>➢ **Re-Direct to Monitor Port M0:** Re-direct packets that meets the criteria from the Network Port to **Monitor Port M0**.<br>➢ **Re-Direct to Monitor Port M1:** Re-direct packets that meets the criteria from the Network Port to **Monitor Port M1**.<br>Please note that the figure displayed in the **Description** field will change according to the re-direct setting you've made here. |
| **Protocol – Re-Direct All Packets** |
| Click the **Re-direct all packets** check box to re-direct all packets. |
| **Protocol – MAC** |
| **Broadcast** **Multicast** **Unicast**<br>**VLAN** **QinQ (Double VLAN TAG)** **CRC Error** |
| **Protocol – Network** |
| **ARP** **IPv4** **IPv6**<br>**ICMP** **IPCS Error** **Pattern Check** |
| **Protocol – Protocol** |
| **TCP** **UDP** **FTP** **RTP** |
| **Protocol – Button** |
| Apply **Apply:** Apply and save the changes you've made on this page. After making any settings on this page, you must click the **Apply** button or all changes will be lost. |

### B. Re-Direct Filter – SDFR




**SDFR**

**SDFR (Self-Discover Filtering Rules)** is a technology that makes packet capturing/filtering over Ethernet easy and convenient. Each filter is independent and can be activated in any combinations.

**SDFR – Choosing SDFR Parameters**

You can choose the criteria with the check boxes. The SDFR parameters available here includes:

- **DA:** Destination MAC Address
- **SA:** Source MAC Address
- **VID:** VLAN ID
- **DIP:** Destination IP Address
- **SIP:** Source IP Address
- **DPort:** Destination Port
- **SPort:** Source Port

As mentioned above, each parameter is independent and can be activated in any combinations of **DA**, **SA**, **VID**, **SIP**, **DIP**, **SPort**, **DPort**, **DA & SA**, **DA & SA & VID**, **DA & SIP**, **DA & DIP**, **SA & SIP**, **SA & DIP**, **SIP & DIP**, **SIP & SPort**, **SIP & DPort**, **DIP & SPort**, **DIP & DPort**, **SIP & DIP & SPort**, **SIP & DIP & DPort**, **SIP & DIP & SPort & DPort**, **VID & SIP & DIP & SPort & DPort**, **DA & SA & SIP &DIP**, **DA & SA & SIP & DIP & SPort & DPort**, and **DA & SA & VID & SIP & DIP & SPort & DPort**.

**SDFR – Rule Setting**

The **Rule Setting** field allows you to set and input the value of **DA**, **SA**, **VID**, **DIP**, **SIP**, **DPort** and **SPort**. The value of SDFR parameters can be set as **Single**, **Pair**, and **Range**. The following descriptions will us **DA** as example.

DA Single 00-00-00-00-00-00 — **Single:** A single value will be used as SDFR parameter.

DA Pair 00-00-00-00-00-00 or 00-00-00-00-00-00 — **Pair:** Two values will be used as SDFR parameters.

DA Range 00-00-00-00-00-00 ≤DA≤ 00-00-00-00-00-00 — **Range:** Values within the range of the two values set here will be used as SDFR parameters.

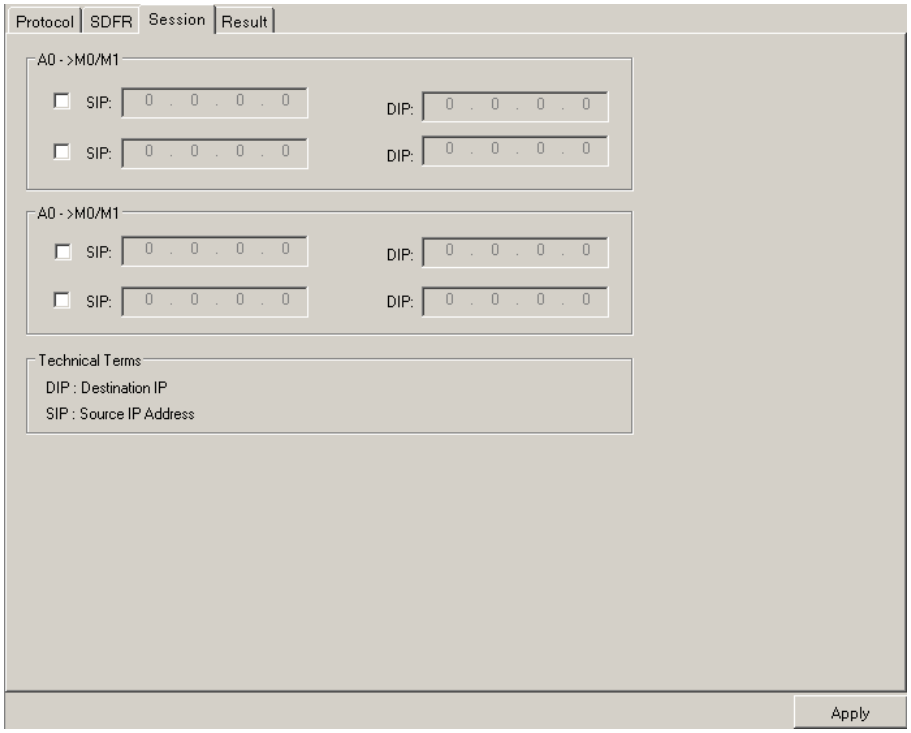
**SDFR – Current Filter/Technical Terms**

The **Current Filter** field displays the settings you've made, while the **Technical Terms** field displays the explanations for **DA**, **SA**, **VID**, **DIP**, **SIP**, **DPort**, and **SPort**.

**SDFR – Button**

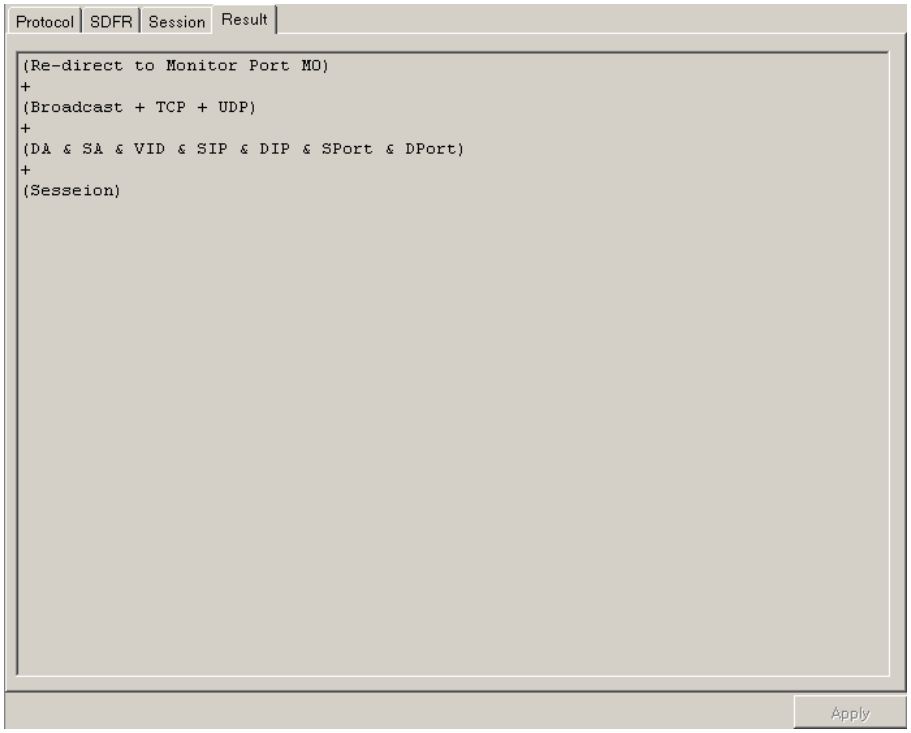
Apply — **Apply:** Apply and save the changes you've made on this page. After making any settings on this page, you must click the **Apply** button or all changes will be lost.

### C. Re-Direct Filter – Session




| **Session** |
|---|
| NuSet-MiniTAP supports **two Session Filters** for each **Network Port**. Each **Session Filter** allows you to set the packets flow from the SIP (Source IP Address) to the DIP (Destination IP Address). The IP addresses that serve as SIP and DIP will be switched (Previous SIP → Current DIP, Previous DIP → Current SIP) afterward.<br><br>To set the **Session Filters**, please check the check box and input the SIP and DIP. |
| **Session – Button** |
| Apply **Apply:** Apply and save the changes you've made on this page. After making any settings on this page, you must click the **Apply** button or all changes will be lost. |

### D. Re-Direct Filter – Result

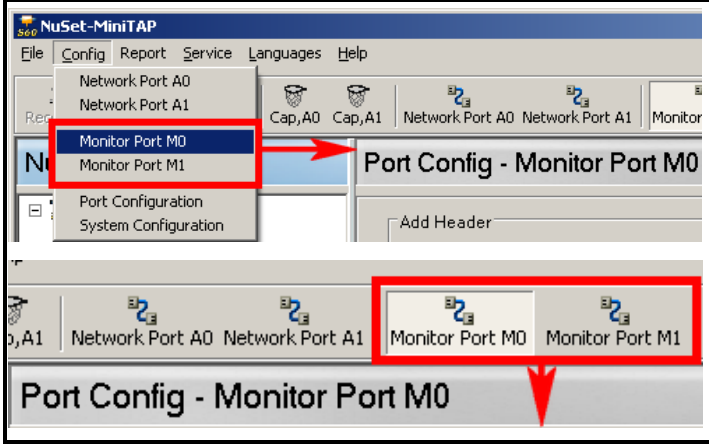



| **Result** |
| --- |
| The **Result** page will display the settings you've made in **Protocol**, **SDFR**, and **Session** pages. |

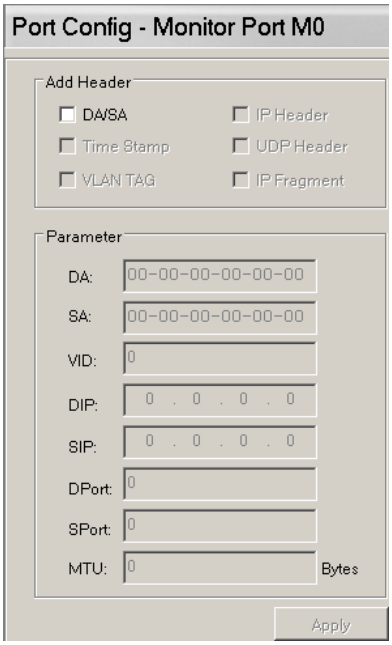
## 6.6. Monitor Port Setting

You can configure filtering/capture criteria and pattern check for Monitor Port M0/M1 in the **Port Config – Monitor Port** screen. There are two ways to access **Port Config – Monitor Port**:

**Accessing Port Config – Monitor Port**




- Click **Monitor Port M0/M1** located on **Config** in the **Menu Bar**.
- Click the **Monitor Port M0/M1** button located on **Quick Launch Buttons**.




**Port Config – Monitor Port M0/M1**

The **Monitor Port** setting page allows you to set the headers that you would like to add to packets transmitted from **Monitor Port M0/M1**. NuSet-MiniTAP supports headers including **DA/SA**, **Time Stamp**, **VLAN TAG**, **IP Header**, **UDP Header**, and **IP Fragment**. These headers are corresponding with the value inputting field down below the Monitor Port setting page as show in the table here:

- **DA/SA:** Destination/Source MAC Address.
- **Time Stamp:** N/A. However, a timestamp header will be added to the packets.
- **VLAN TAG:** VID (VLAN ID).
- **IP Header:** DIP (Destination IP Address) and SIP (Source IP Address).
- **UDP Header:** DPort (Destination Port) and SPort (Source Port).
- **IP Fragment:** MTU (Maximum Transmission Unit)

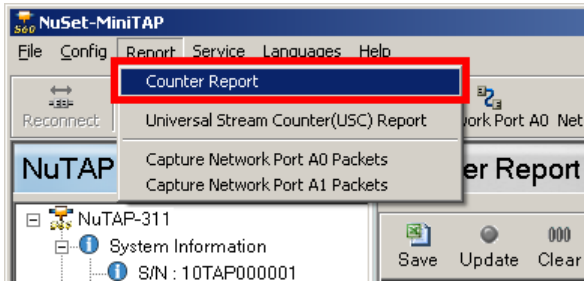
**Button**

| | |
|---|---|
| Apply | **Apply:** Apply and save the changes you've made on this page. After making any settings on this page, you must click the **Apply** button or all changes will be lost. |

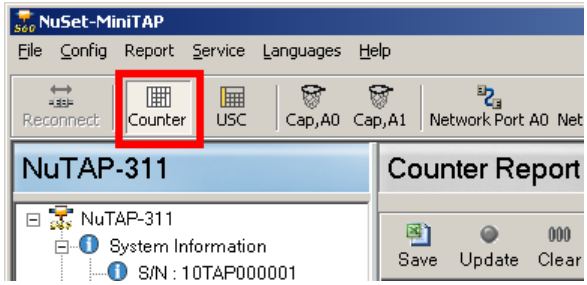
## 6.7. Counter Report

You can view NuSet-MiniTAP's counter report/chart of NuTAP-311's Network Port and Monitor Port with **Counter Report**. There are two ways to access **Counter Report**:

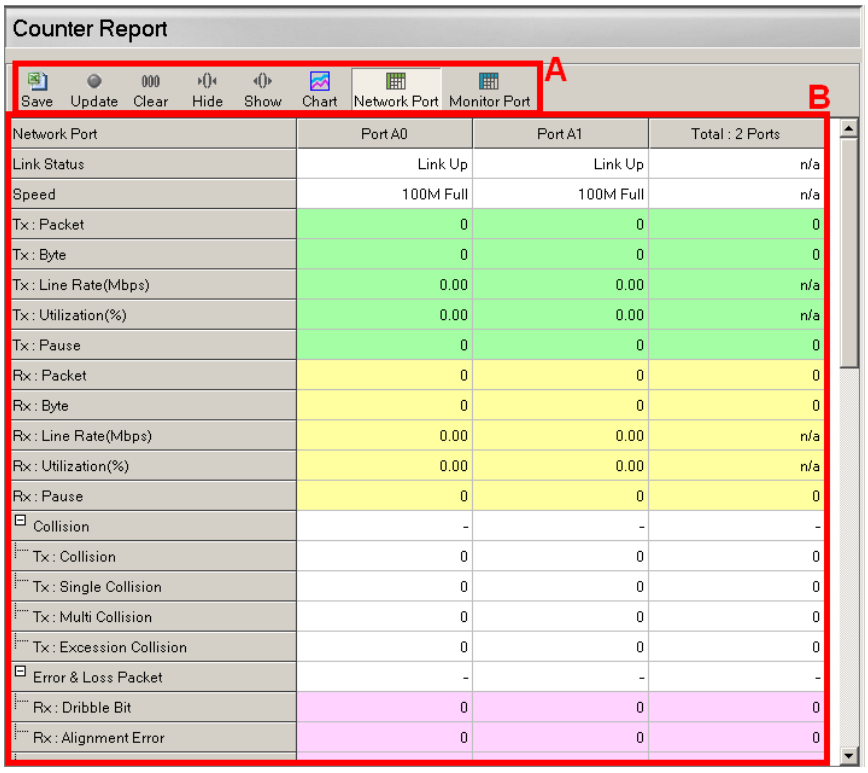
**Accessing Counter Report**




- Click **Counter Report** located on **Report** in the **Menu Bar**.




- Click the **Counter Report** button located on **Quick Launch Buttons**.



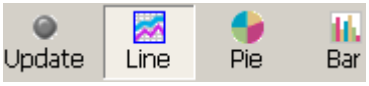

| Network Port | Port A0 | Port A1 | Total : 2 Ports |
|---|---|---|---|
| Link Status | Link Up | Link Up | n/a |
| Speed | 100M Full | 100M Full | n/a |
| Tx : Packet | 0 | 0 | 0 |
| Tx : Byte | 0 | 0 | 0 |
| Tx : Line Rate(Mbps) | 0.00 | 0.00 | n/a |
| Tx : Utilization(%) | 0.00 | 0.00 | n/a |
| Tx : Pause | 0 | 0 | 0 |
| Rx : Packet | 0 | 0 | 0 |
| Rx : Byte | 0 | 0 | 0 |
| Rx : Line Rate(Mbps) | 0.00 | 0.00 | n/a |
| Rx : Utilization(%) | 0.00 | 0.00 | n/a |
| Rx : Pause | 0 | 0 | 0 |
| Collision | - | - | - |
| Tx : Collision | 0 | 0 | 0 |
| Tx : Single Collision | 0 | 0 | 0 |
| Tx : Multi Collision | 0 | 0 | 0 |
| Tx : Excession Collision | 0 | 0 | 0 |
| Error & Loss Packet | - | - | - |
| Rx : Dribble Bit | 0 | 0 | 0 |
| Rx : Alignment Error | 0 | 0 | 0 |

| Accessing Counter Report | | |
|---|---|---|
| **A** | **Control Buttons** | These buttons allow you to save the counter report, start/stop updating counter report, clear all statistics, view charts, and switch to display Monitor Port/Network Port. |
| **B** | **Main Display Window** | You can view counter statistics here in this section. |

Please see the sections down below for detail information regarding to **Counter Report**.

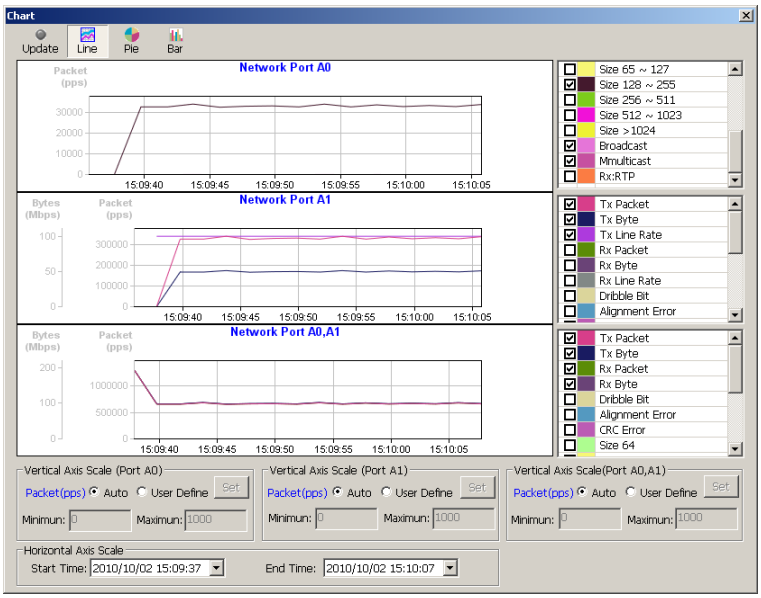

## Report Control Buttons Descriptions

| | |
|---|---|
| Save | The **Save** button allows you to save the current **Network Port** and **Monitor Port** counter reports to Microsoft Excel ® format files. |
| Update | The **Update** button allows you to start/stop updating statistics displayed in the **Main Display Window**. |
| Clear | The **Clear** button allows you to clear all statistics displayed in the **Main Display Window**. |
| Hide | The **Hide** button allows you to hide all Network Ports and Monitor Ports' TX/Rx statistics, as well as fold all tree style tab statistics in the **Main Display Window**. |
| Show | The **Show** button allows you to show all Network Ports and Monitor Ports' TX/Rx statistics, as well as unfold all tree style tab statistics in the **Main Display Window**. |
| Chart | The **Chart** button allows you to view **Network Port's Counter Report Chart** on a pop-up **Chart** window. There are three different display modes for Counter Report Chart: **Line**, **Pie**, and **Bar**. |

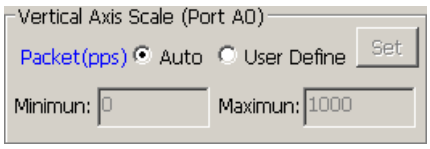



- **Update:** Start/Stop updating Counter Report Chart.
- **Line:** Switch the chart display mode to **Line Mode**.
- **Pie:** Switch the chart display mode to **Pie Mode**.
- **Bar:** Switch the chart display mode to **Bar Mode**.

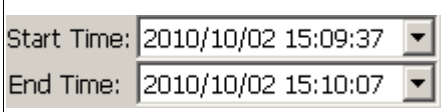
### Line Mode




The **Line Mode** displays the statistics about the of packets flow through **Network Port A0**, **Network Port A1**, and **Network Port A0/A1**. To display the statistics as line on the chart, please click the check box of that statistics.




The **Vertical Axis Scale** fields allow you to set the scale in **pps** (Packets per Second) of the X-Axis of the **Line Chart**. The **Vertical Axis Scale** can be set to **Auto**, or you can set its minimum/maximum value by **User Define**.

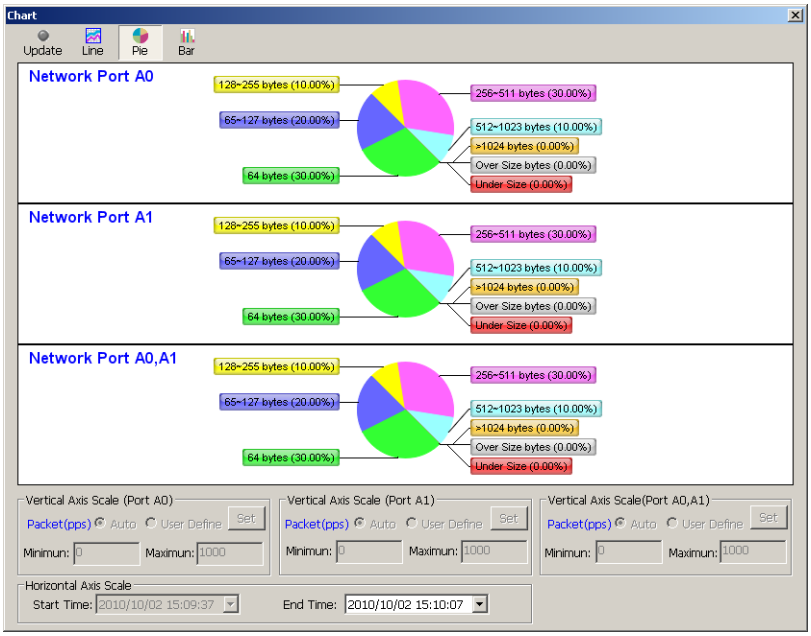



The **Horizontal Axis Scale** field allows you to set the scale of the Y-Axis of the **Line Chart**. Click the scroll-down menus of **Start Time** and **End Time** to set the statistics during a period of time.

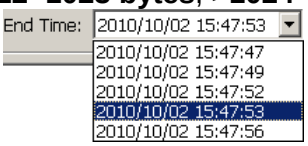
## Report Control Buttons Descriptions

Chart (Contd.)

### Pie Mode

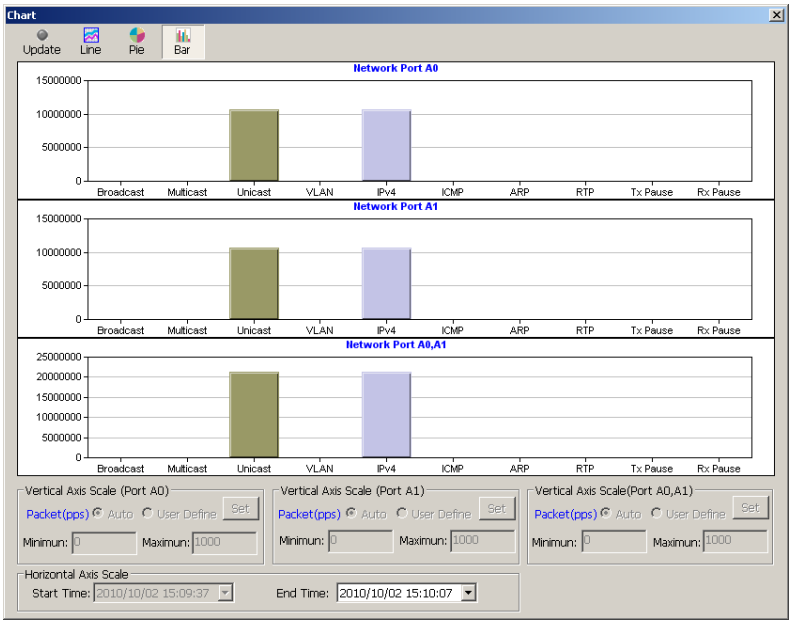



The **Pie Mode** displays the statistics regarding to the lengths of packets flow through **Network Port A0**, **Network Port A1**, and **Network Port A0/A1**. Packets are categorized into the following categories: **64 bytes**, **65~127 bytes**, **128~255 bytes**, **256~511 bytes**, **512~1023 bytes**, **>1024 bytes**, **Over Size byte**, and **Under Size**.

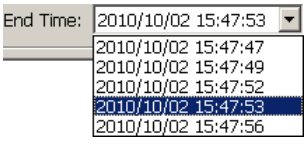



Also, clicking the **End Time** scroll-down menu and selecting a time listed here allows you to view the **Pie Chart** of that time.

### Bar Mode



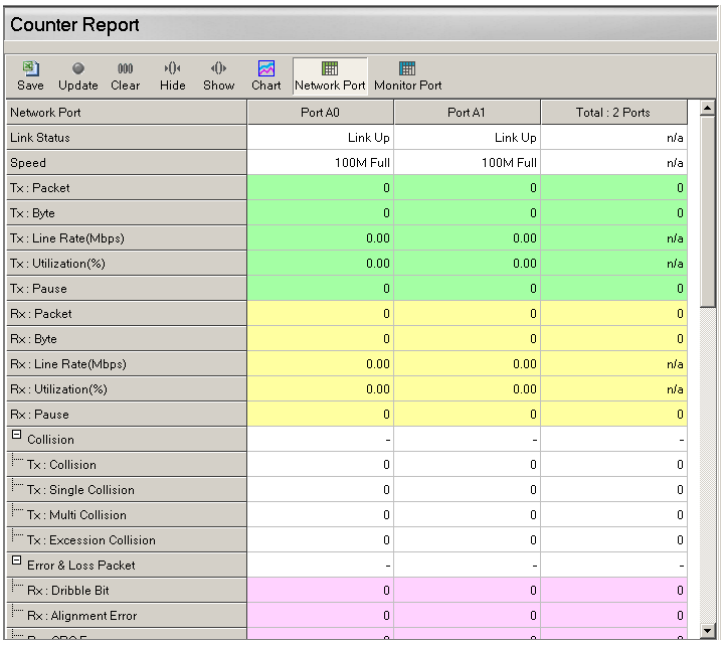

The **Bar Mode** displays **Network Port A0**, **Network Port A1**, and **Network Port A0/A1**'s statistics including: **Broadcast**, **Multicast**, **VLAN**, **IPv4**, **ICMP**, **ARP**, **RTP**, and **Tx/Rx Pause**.




Also, clicking the **End Time** scroll-down menu and selecting a time listed here allows you to view the **Bar Chart** of that time.

## Report Control Buttons Descriptions

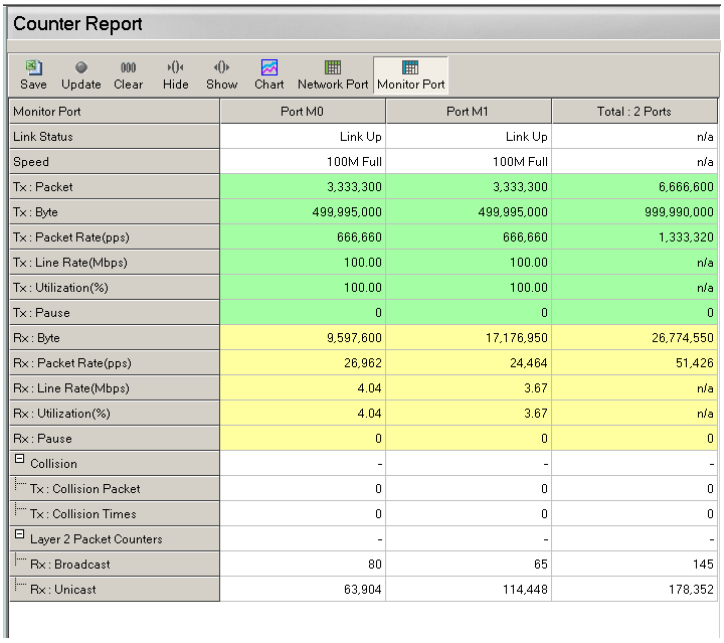
Network Port




| Network Port | Port A0 | Port A1 | Total : 2 Ports |
|---|---|---|---|
| Link Status | Link Up | Link Up | n/a |
| Speed | 100M Full | 100M Full | n/a |
| Tx : Packet | 0 | 0 | 0 |
| Tx : Byte | 0 | 0 | 0 |
| Tx : Line Rate(Mbps) | 0.00 | 0.00 | n/a |
| Tx : Utilization(%) | 0.00 | 0.00 | n/a |
| Tx : Pause | 0 | 0 | 0 |
| Rx : Packet | 0 | 0 | 0 |
| Rx : Byte | 0 | 0 | 0 |
| Rx : Line Rate(Mbps) | 0.00 | 0.00 | n/a |
| Rx : Utilization(%) | 0.00 | 0.00 | n/a |
| Rx : Pause | 0 | 0 | 0 |
| Collision | - | - | - |
| Tx : Collision | 0 | 0 | 0 |
| Tx : Single Collision | 0 | 0 | 0 |
| Tx : Multi Collision | 0 | 0 | 0 |
| Tx : Excession Collision | 0 | 0 | 0 |
| Error & Loss Packet | - | - | - |
| Rx : Dribble Bit | 0 | 0 | 0 |
| Rx : Alignment Error | 0 | 0 | 0 |

The **Network Port** button allows you to view **Counter Report** of NuTAP-311's **Network Ports**.

Monitor Port



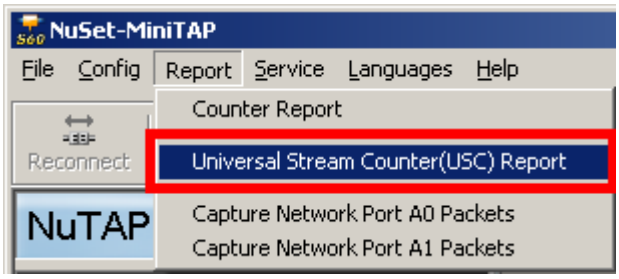

| Monitor Port | Port M0 | Port M1 | Total : 2 Ports |
|---|---|---|---|
| Link Status | Link Up | Link Up | n/a |
| Speed | 100M Full | 100M Full | n/a |
| Tx : Packet | 3,333,300 | 3,333,300 | 6,666,600 |
| Tx : Byte | 499,995,000 | 499,995,000 | 999,990,000 |
| Tx : Packet Rate(pps) | 666,660 | 666,660 | 1,333,320 |
| Tx : Line Rate(Mbps) | 100.00 | 100.00 | n/a |
| Tx : Utilization(%) | 100.00 | 100.00 | n/a |
| Tx : Pause | 0 | 0 | 0 |
| Rx : Byte | 9,597,600 | 17,176,950 | 26,774,550 |
| Rx : Packet Rate(pps) | 26,962 | 24,464 | 51,426 |
| Rx : Line Rate(Mbps) | 4.04 | 3.67 | n/a |
| Rx : Utilization(%) | 4.04 | 3.67 | n/a |
| Rx : Pause | 0 | 0 | 0 |
| Collision | - | - | - |
| Tx : Collision Packet | 0 | 0 | 0 |
| Tx : Collision Times | 0 | 0 | 0 |
| Layer 2 Packet Counters | - | - | - |
| Rx : Broadcast | 80 | 65 | 145 |
| Rx : Unicast | 63,904 | 114,448 | 178,352 |

The **Monitor Port** button allows you to view **Counter Report** of NuTAP-311's **Monitor Ports**.

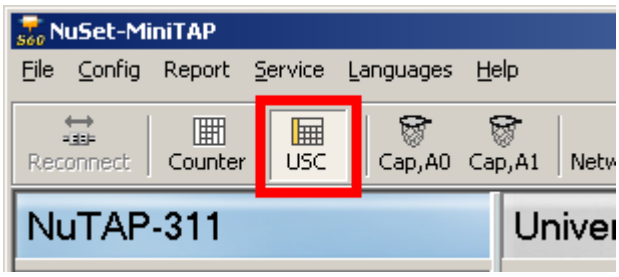
## 6.8. Universal Stream Counter (USC) Report

NuTAP-311's **Network Ports** contains two sets of USC (Universal Stream Counter), allowing you to view real-time statistics of network events during packet monitoring and capturing. There are two ways to access **Universal Stream Counter Report**:

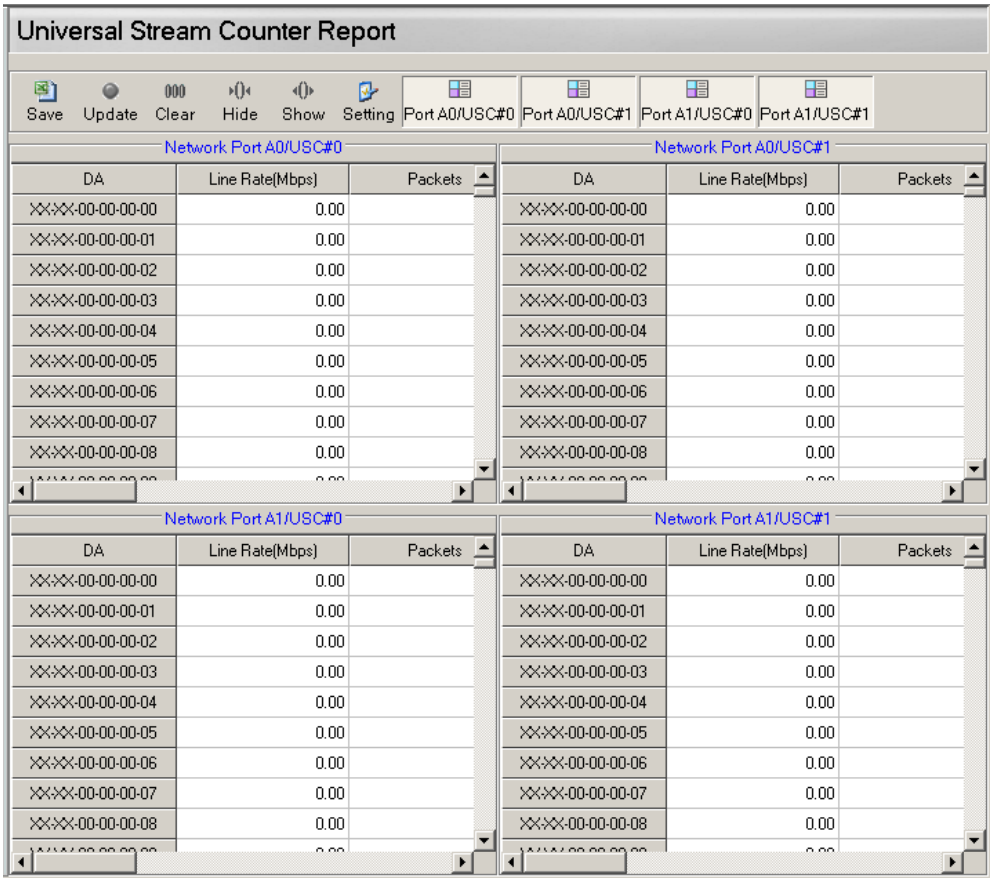
**Accessing Universal Stream Counter (USC) Report**



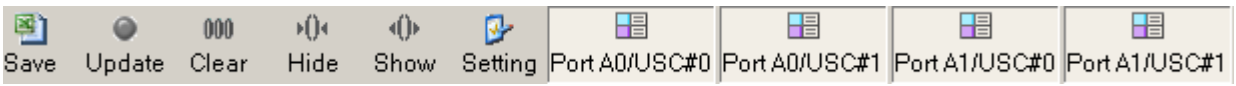

- Click **Universal Stream Counter (USC) Report** located on **Report** in the **Menu Bar**.

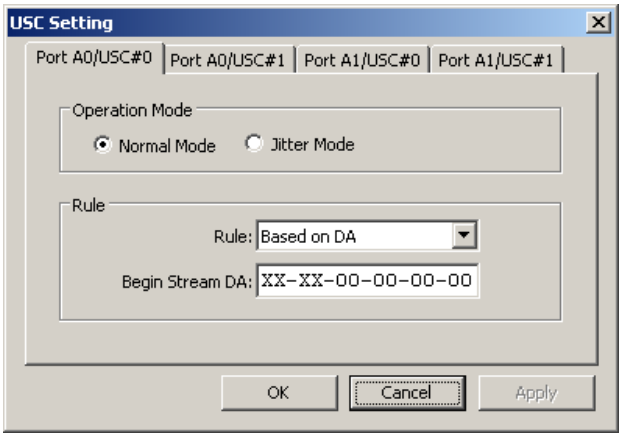



- Click the **Universal Stream Counter (USC) Report** button located on **Quick Launch Buttons**.




Please see the sections down below for detail description regarding to **Universal Stream Counter Report**.




| Universal Stream Counter (USC) Control Buttons Descriptions | |
|---|---|
| Save | The **Save** button allows you to save the current **Universal Stream Counter** reports to Microsoft Excel ® format files. |
| Update | The **Update** button allows you to start/stop updating statistics displayed in the **Main Display Window**. |
| Clear | The **Clear** button allows you to clear all statistics displayed in the **Main Display Window**. |
| Hide | The **Hide** button allows you to hide all statistics displayed in the **Main Display Window**. |
| Show | The **Show** button allows you to show all statistics displayed in the **Main Display Window**. |
| Setting |  <br>A **USC Setting** window will pop up if you click the **Setting** button, allowing you to set USC criteria for **Port A0/USC#0**, **Port A0/USC#1**, **Port A1/USC#0**, and **Port A1/USC#1**. To choose the Universal Stream Counter you would like to configure, please click the tab-menu on the upper part of the **USC Setting** window.<br>➢ **Operation Mode**<br>• **Normal Mode:** The Universal Stream Counter will run under **Normal Mode**.<br>• **Jitter Mode:** The Universal Stream Counter will run under **Jitter Mode**. Please note that when under **Jitter Mode**, additional statistics regarding to packet jitter will be displayed in the Universal Stream Counter Report:<br>**Delta Time (ns)** – **Current**: Current time interval between packets; **Maximum**: Maximum time interval between packets; **Minimum**: Minimum time interval between packets<br>**Jitter (ns)**: Max Delta Time – Min Delta Time = Jitter<br>➢ **Rule**<br>• **Rule:** You can set the USC rule base on **DA**, **SA**, **VID**, **MPLS**, **DIP**, **SIP**, **DPort**, **SPort**, and **VLAN CoS** (VLAN Class of Service) with the **Rule** scroll-down menu.<br>• **Begin String:** You can input the value of **DA**, **SA**, **VID**, **MPLS**, **DIP**, **SIP**, **DPort**, **SPort**, and **VLAN CoS** (VLAN Class of Service) here in this field.<br>➢ **OK:** Apply the changes you've made and exit.<br>➢ **Cancel:** Cancel the changes you've made and exit.<br>➢ **Apply:** Apply the changes you've made without exit. |

## Universal Stream Counter (USC) Control Buttons Descriptions

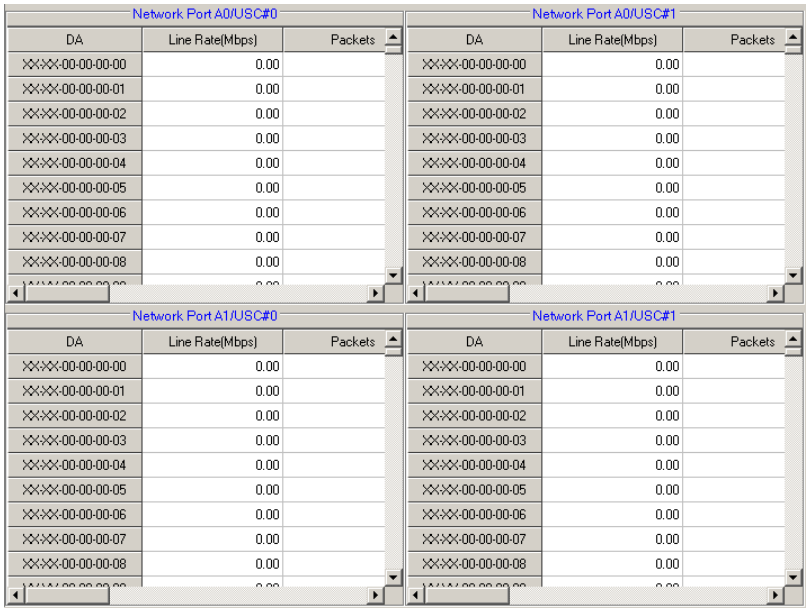
Port A0/USC#0

Port A0/USC#1

Port A1/USC#0

Port A1/USC#1

The **Port A0/USC#0**, **Port A0/USC#1**, **Port A1/USC#0**, and **Port A1/USC#1** buttons allows you to display **Network Port A0's USC Counter #0**, **Network Port A0's USC Counter #1**, **Network Port A1's USC Counter #0**, and **Network Port A1's USC Counter #1**.




Up to **four Universal Stream Counter Reports** can be displayed at the same time as shown in the figure above. You can view each Universal Stream Counter's **DA** (Destination MAC Address), **Line Rate (Mbps)**, **Packets**, **Bytes**, **Broadcast**, **Multicast**, **IPCS Error**, and **CRC Error** on the **Universal Stream Counter Report**.

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