XTRAMUS

NuSet-MiniTAP
User's Manual

Foreword

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Revision History

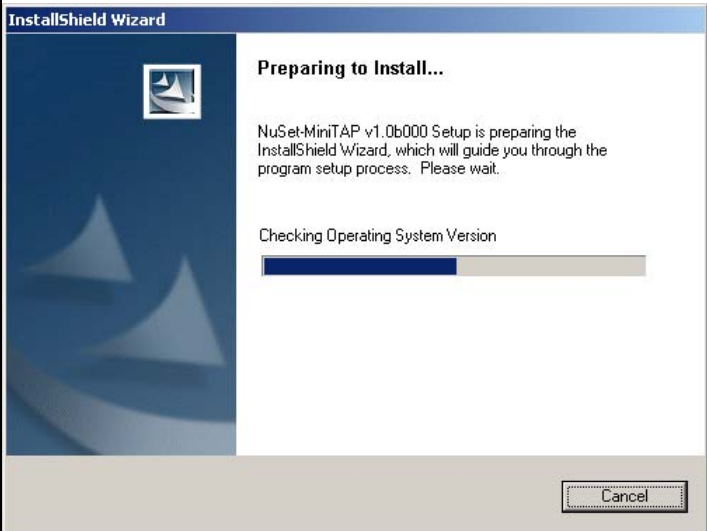| Date	Version	History
2010/09/26	1.0	First draft version
2010/12/13	1.1	1. Page 9, change NuTAP-S61 installation figures and related descriptions. 2. Page 19, changing title/descriptions regarding to Monitor Port M0/M1. 3. Page 22, change descriptions regarding to Filter All Packets. 4. Page 23/26, correct typos regarding to Rule Setting. 5. Page 29, change descriptions regarding to Re-direct All Packets. 6. Page 30, change descriptions regarding to VLAN ID. 7. Page 35, change descriptions regarding to Line Mode. 8. Page 35, change column title to Report Control Buttons Descriptions. 9. Page 36, change descriptions regarding to Bar Mode. 10. Page 37, change column title to Accessing Universal Stream Counter (USC) Report.

Table of Contents

1. Installing/Uninstalling NuSet-MiniTAP

NuSet-MiniTAP is a GUI (graphic user interface) utility software for setting test criteria and system management. NuSet-MiniTAP supports **NuTAP-S61** and **NuTAP-311**. When **NuTAP-S61/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.
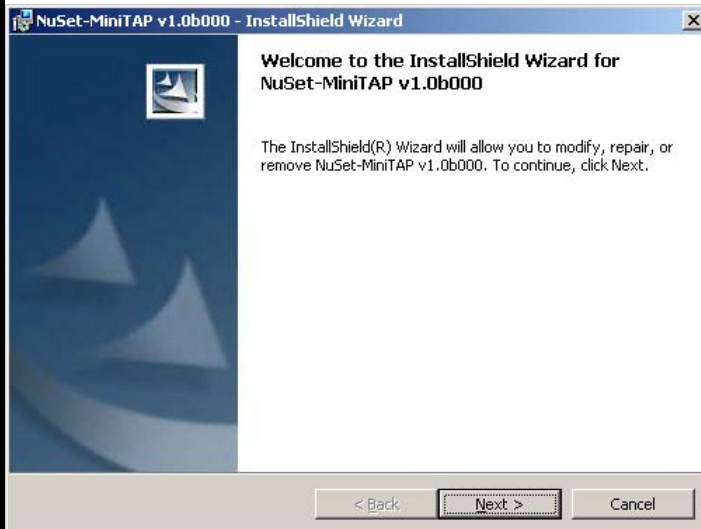
However, before using NuSet-MiniTAP's features and functions, you have to install it on your PC first.

Both NuTAP-S61 and NuTAP-311's drivers are 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-S61/NuTAP-311 to the PC before the installation.

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

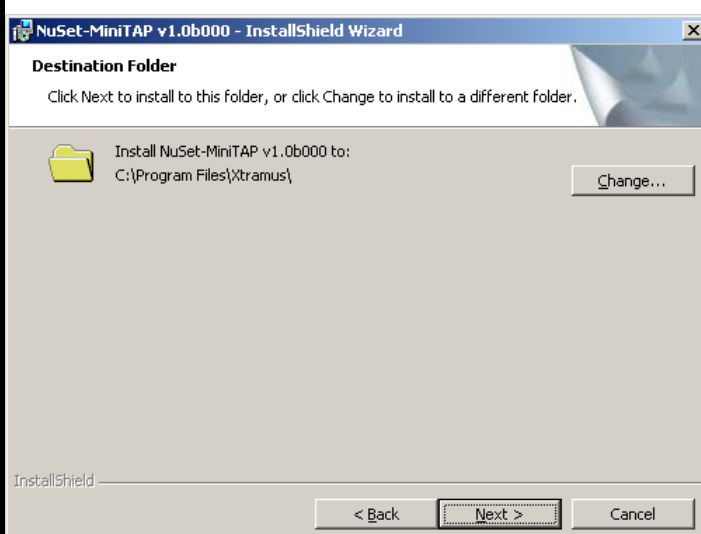| NuSet-MiniTAP Installation	
	1. Double-click NuSet-MiniTAP installation program and start the installation process.
	2. InstallShield Wizard is starting to install NuSet-MiniTAP. If you would like to cancel installation, click "**Cancel**".

NuSet-MiniTAP Installation

|	
![NuSet-MiniTAP v1.0b000 - InstallShield Wizard - Welcome to the InstallShield Wizard for NuSet-MiniTAP v1.0b000. The InstallShield(R) Wizard will allow you to modify, repair, or remove NuSet-MiniTAP v1.0b000. To continue, click Next.]	3. Click "**Next**" to continue installation.
![NuSet-MiniTAP v1.0b000 - InstallShield Wizard - License Agreement. Please read the following license agreement carefully. End User License Agreement. IMPORTANT NOTICE. This is a license agreement between you (either an individual or a single entity) and Xtramus Technologies ("Xtramus"). Before installing or using this software, please read the following license terms carefully. By installing or using this software, you are deemed to accept this license agreement. Do not install or use this software if you do not accept or agree with these license terms. I accept the terms in the license agreement. I do not accept the terms in the license agreement.]	4. Click "**I accept the terms in the license agreement**", and click "**Next**" to continue.
![NuSet-MiniTAP v1.0b000 - InstallShield Wizard - Destination Folder. Click Next to install to this folder, or click Change to install to a different folder. Install NuSet-MiniTAP v1.0b000 to: C:\Program Files\Xtramus\ Change...]	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
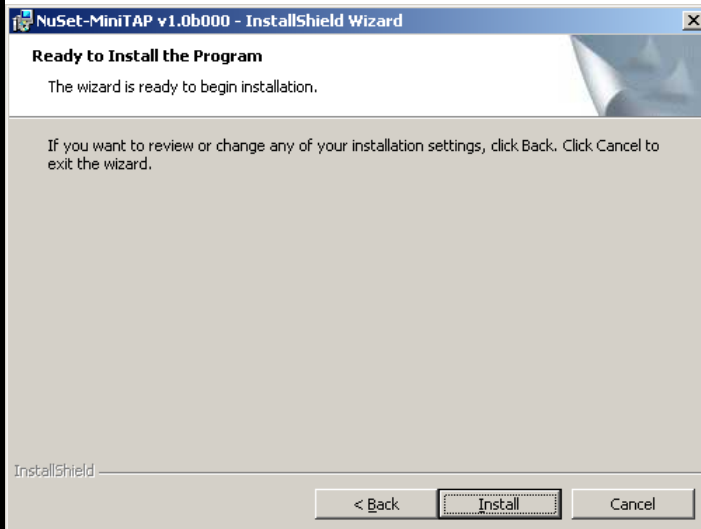
6. NuSet-MiniTAP InstallShield Wizard will start installing momentarily. Click **Install** button if the information is correct.
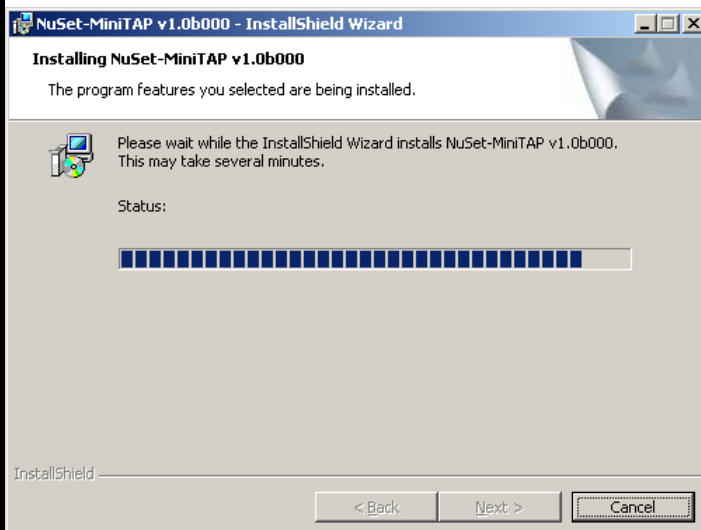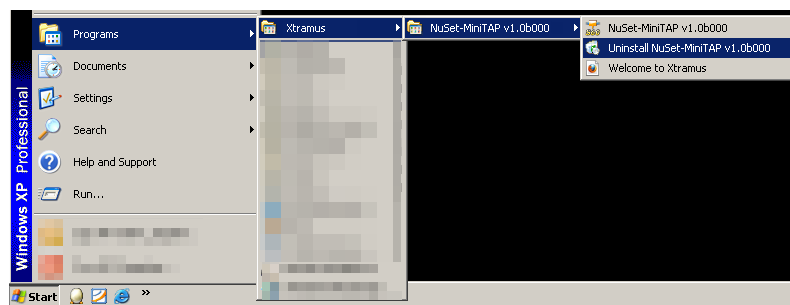
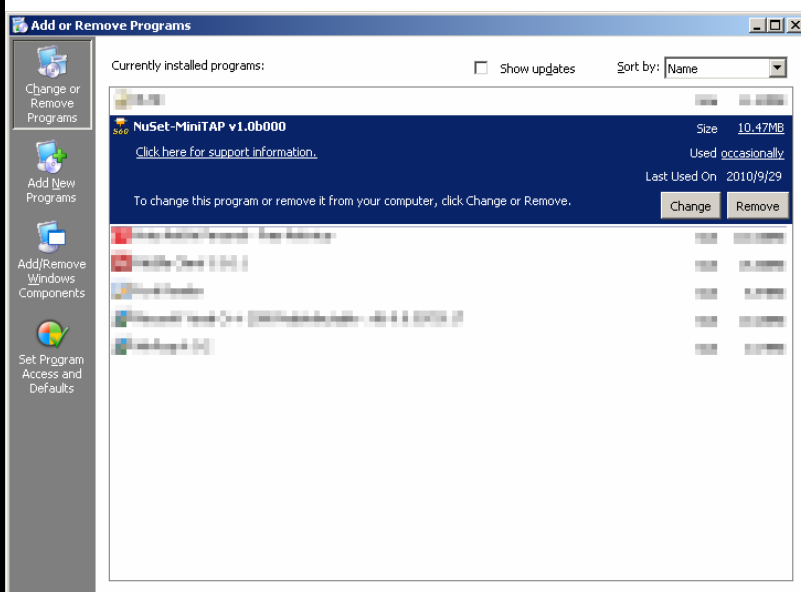7. InstallShield Wizard is installing NuSet-MiniTAP.
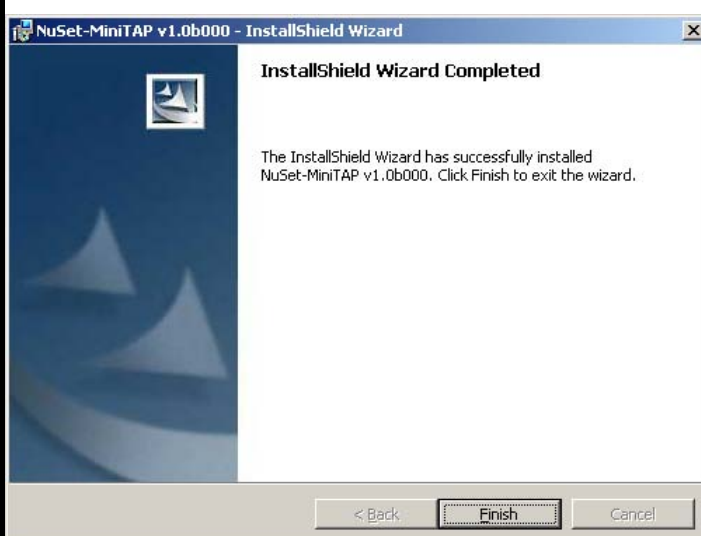
8. NuSet-MiniTAP installation completes. Click **Finish** button to exit.

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.

2. NuSet-MiniTAP Overview

2.1. Starting NuSet-MiniTAP

Before starting NuSet-MiniTAP, please be sure that your NuTAP-S61 or NuTAP-311 is properly connected to your PC. The figure down below is an example for connecting NuTAP-S61 to PC via an RJ45-to-USB cable.
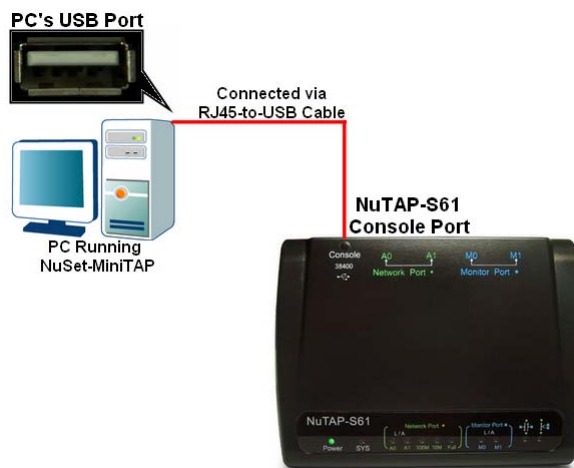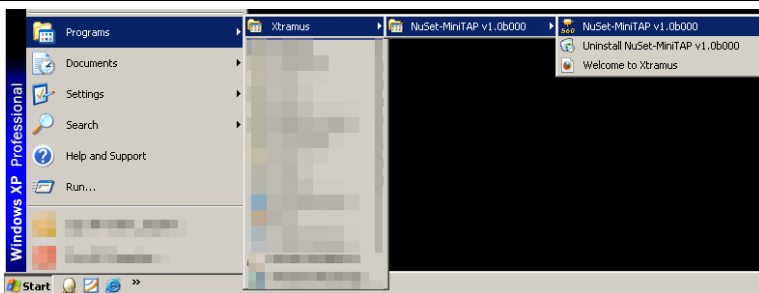


You can start NuSet-MiniTAP by:

| 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-S61 /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.
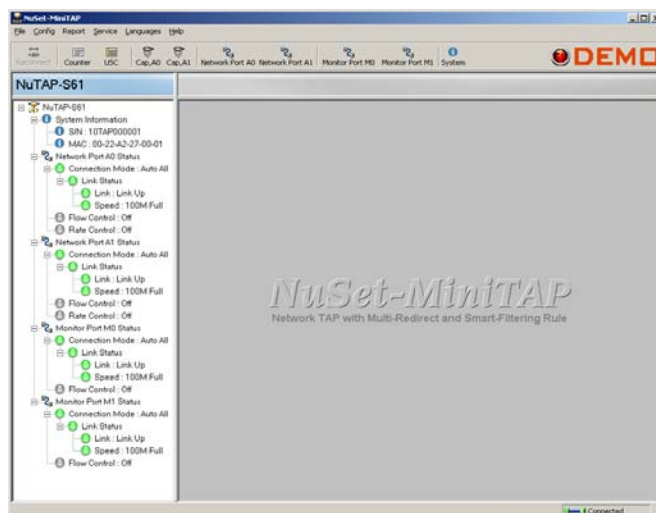
2.2. NuSet-MiniTAP Main Window Overview
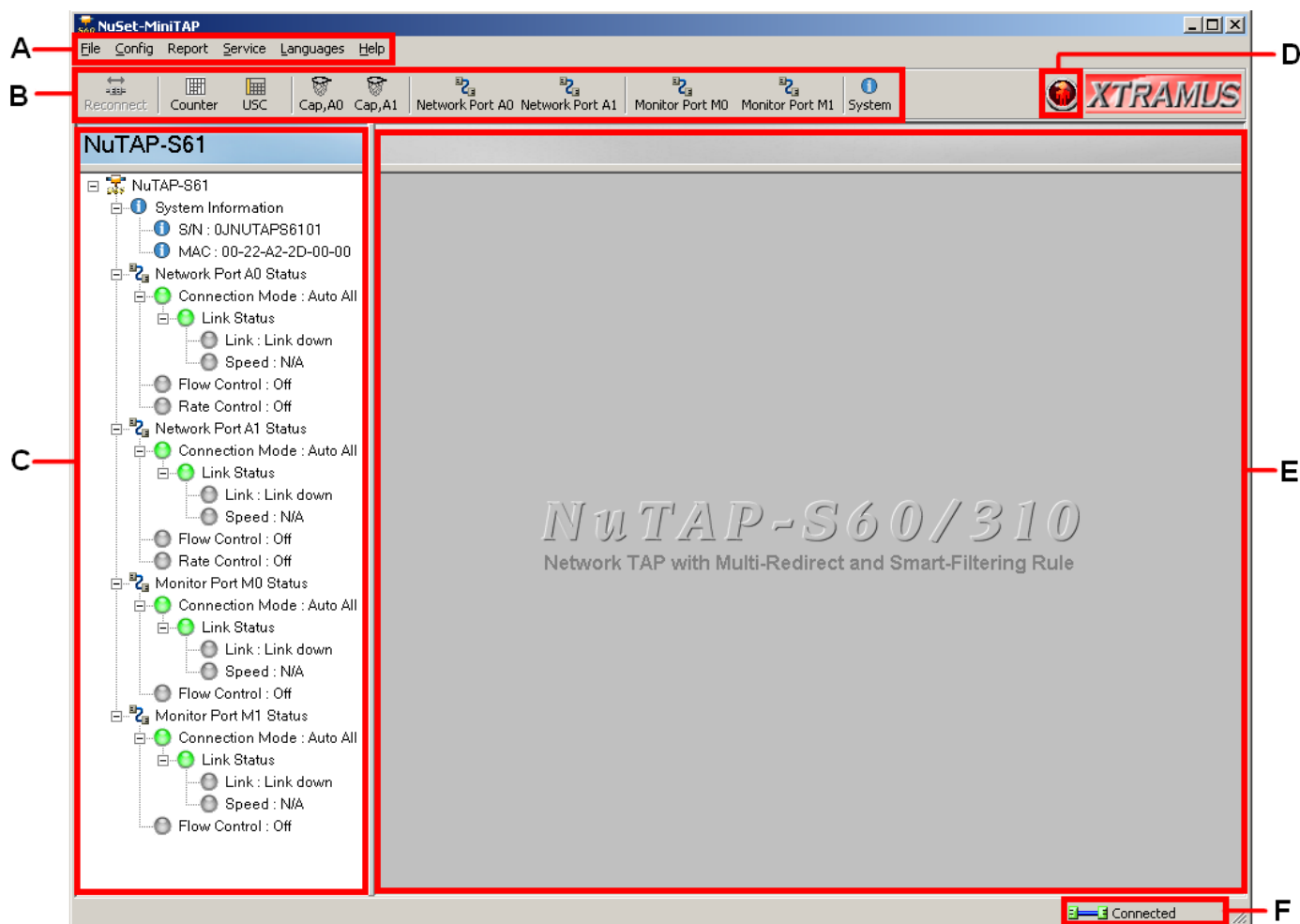
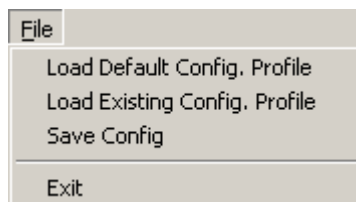| NuTAP-S60_310 Utility Functions Overview		
A	**Menu Bar**	The **Menu Bar** allows you to make settings about test criteria, view/save test log, change language displayed, and update firmware /FPGA.
B	**Quick Launch Buttons**	The **Quick Launch Buttons** allow you to reconnect your PC to NuTAP-S60_310 Utility, 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-S61/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-S61/NuTAP-311.

3. NuSet-MiniTAP Functions

3.1. Menu Bar
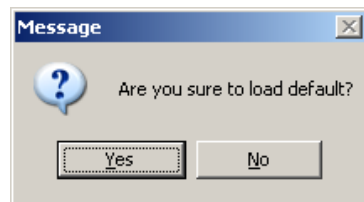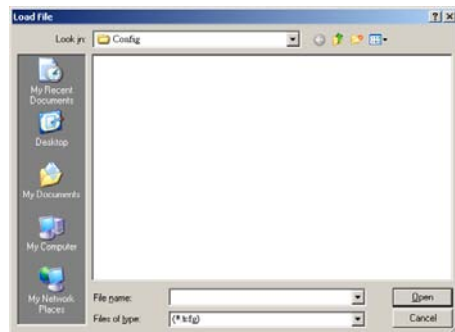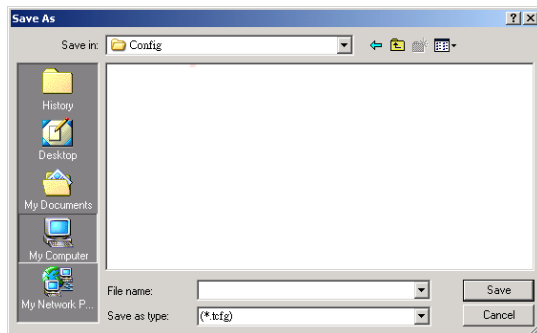
<u>F</u>ile   <u>C</u>onfig   Report   <u>S</u>ervice   Languages   Help

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.
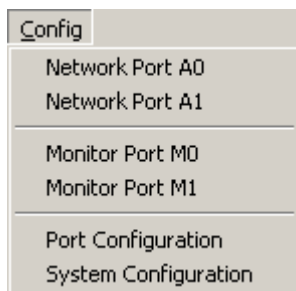
3.1.1. File

<u>F</u>ile

Load Default Config. Profile
Load Existing Config. Profile
Save Config
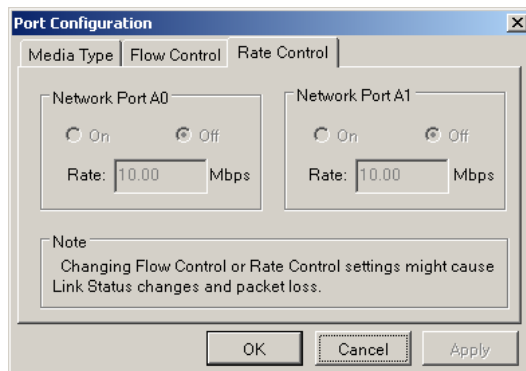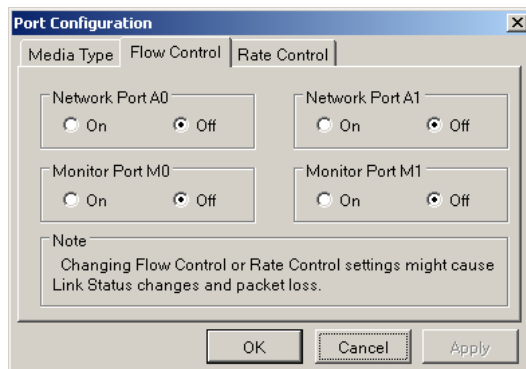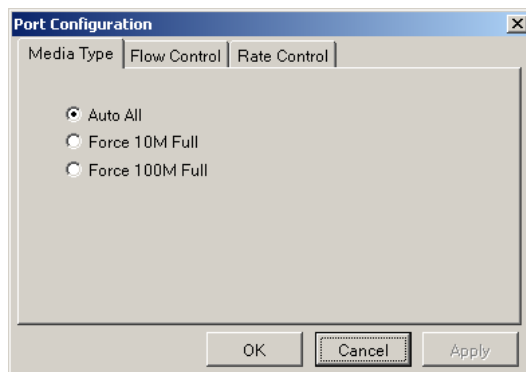
Exit

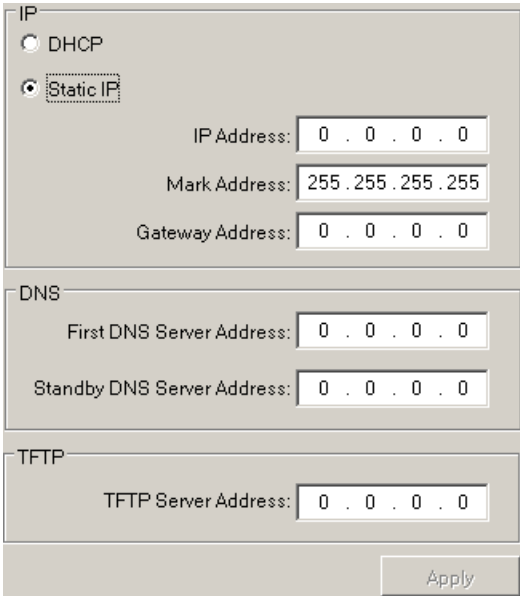| Function Descriptions – File	
Load Default Config. Profile	The **Load Default Config** function allows you to set all NuSet-MiniTAP's settings to default value. Click **YES** to load NuSet-MiniTAP's default value, or click **NO** to cancel.
Load Existing Config. Profile	Load a previously-saved configuration file and applies these settings to NuSet-MiniTAP. 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.

3.1.2. 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 **3.5. Network Port Settings** on **page 21**.
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 **3.6. Monitor Port Settings** on **page 33**.
Port Configuration	You can make settings regarding to NuTAP-S61/NuTAP-311's **Network Port A0/A1** and **Monitor Port M0/M1** with the **Port Configuration** function located on the **Menu Bar**. You can set the connection rate for Network Ports and Monitor Ports with the **Media Type** menu tab. ➢ **Auto All:** Set all Network Ports and Monitor Ports as auto-negotiation. ➢ **Force 10M Full:** Set all Network Ports and Monitor Ports to 10M Full-duplex. ➢ **Force 100M Full:** Set all Network Ports and Monitor Ports to 100M Full-duplex. When **Flow Control** is enabled, the transmitting rate will drop if traffic overflow occurs. ➢ **On:** Enable **Flow Control**. ➢ **Off:** Disable **Flow Control**. Please note that before making **Rate Control** settings, Network Port A0/A1's **Flow Control** function must be enabled. You can set the transmitting/receiving rate for Network Port A0/A1 if **Flow Control** is enabled. ➢ **On/Off:** Enable/Disable **Rate Control**. ➢ **Rate:** When **Rate Control** is enabled, you can set the transmitting/receiving rate for Network Port A0/A1.

![Xtramus logo]

System Configuration	You can set NuTAP-S61/NuTAP-311's **IP**, **DNS**, and **TFTP** here in this field. These settings will be used when connecting NuTAP-S61/NuTAP-311 to an existing network and access NuTAP-S61/NuTAP-311 via configuration web pages. Click "**Apply**" located on the button-right to save/apply all the changes you've made.
	IP
	The **IP** section allows you to configure NuTAP-S61/NuTAP-311's IP settings. ➢ **DHCP:** NuTAP-S61/NuTAP-311 will acquire IP/Subnet Mask/Gateway addresses automatically from the network DHCP server. ➢ **Static IP:** Set NuTAP-S61/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**.
	DNS
	You can set the **First/Secondary DNS Server Address** here in the **DNS** field.
	TFTP
	TFTP stands for Trivial File Transfer Protocol. If NuTAP-S61/NuTAP-311 is connecting to a network with TFTP server, please input the TFTP Server IP address here in this field.

IP
- ☐ DHCP
- ☒ Static IP

    IP Address: 0 . 0 . 0 . 0
    Mark Address: 255 . 255 . 255 . 255
    Gateway Address: 0 . 0 . 0 . 0

DNS

    First DNS Server Address: 0 . 0 . 0 . 0
    Standby DNS Server Address: 0 . 0 . 0 . 0

TFTP

    TFTP Server Address: 0 . 0 . 0 . 0

    Apply

3.1.3. Report

Report
Counter Report
Universal Stream Counter(USC) Report
Capture Network Port A0 Packets
Capture Network Port A1 Packets

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 **3.7. Counter Report** on **page 34**.
Universal Stream Counter (USC) Report	Each of NuTAP-S61/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 **3.8. Universal Stream Counter (USC) Report** on **page 38**.
Capture Network Port A0/A1 Packets	 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: ○ Capture-and-Stop Mode ⦿ Real-time Mode ➢ **Capture-and-Stop Mode:** NuSet-MiniTAP will capture and store packets in NuTAP-S61/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. ➢ **Real-time Mode:** NuSet-MiniTAP will capture all packets that meet the criteria, and display them in a real-time fashion. Open Save Start Stop Setting You can control packet capturing with the control buttons located above. ➢ **Open:** Open a "∗**.pcap**" file and view captured packets with NuSet-MiniTAP. ➢ **Save:** Save the captured packets as a file in the format of "∗**.pcap**". ➢ **Start/Stop:** Start/Stop packet capturing. ➢ **Setting:** A **Capture Settings** window will pop up, allowing you to set memory buffer size (**KB**).

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

Item Name	Value
Ethernet II	
Destination	A5:5A:A5:5A:A5:5A
Source	A5:5A:A5:5A:A5:5A
Type	0xA55A

```
00000000 A5 5A A5 5A A5 5A A5 5A A5 5A A5 5A A5 5A .Z.Z.Z.Z.Z.Z.Z
00000010 A5 5A A5 5A A5 5A A5 5A A5 5A A5 5A A5 5A .Z.Z.Z.Z.Z.Z.Z
00000020 A5 5A A5 5A A5 5A A5 5A A5 5A A5 5A A2 00 07 00 .Z.Z.Z.Z.Z...
00000030 00 00 5F 06 BB 99 34 3D A5 5A A5 5A E7 00 6D 51 .._...4=.Z.Z..mQ
```

Capture Network Port A0/A1 Packets (Contd.)

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.

3.1.4. Service

![Service menu showing System Upgrade and Terminal Web Connection options]

Function Descriptions – Service	
	The **System Upgrade** function located on the **Menu Bar** allows you to upgrade NuTAP-S61/NuTAP-311's firmware and FPGA. The following section will demonstrate how to upgrade NuTAP-S61/NuTAP-311's firmware with NuSet-MiniTAP. The processes for upgrading firmware and FPGA are quite the same and can be related.
System Upgrade	![Service menu with System Upgrade, Firmware Upgrade, Terminal Web Connection, FPGA Upgrade] 1. Please click **Service** → **System Upgrade** → **Firmware Upgrade** on the **Menu Bar**. If you want to upgrade FPGA, please choose **FPGA Upgrade**.
	![NuSet-MiniTAP window with File Browse, System Information: Model NuTAP-S61, Hardware Version vES00, Firmware Version v0.9b008, FPGA Version v1.0b005] 2. A **NuSet-MiniTAP** window will pop up. Please click the **Browse** button.
	![Load File window, Look in NuTAP-S61_RTC_v0.9b008, file NuTAP-S61_RTC_v0.9b008, File name NuTAP-S61_RTC_v0.9b008, Files of type (*.bin)] 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.
	![NuSet-MiniTAP window, File D:\NuTAP-S61 Firmware&FPGA\NuTAP-S61_RTC_v0.9b008\NuTA, System Information: Model NuTAP-S61, Hardware Version vES00, Firmware Version v0.9b008, FPGA Version v1.0b005] 4. Click **Upgrade** button to start upgrading NuTAP-S61/NuTAP-311's firmware.
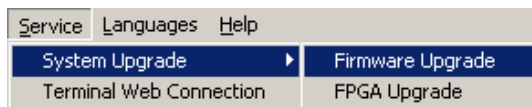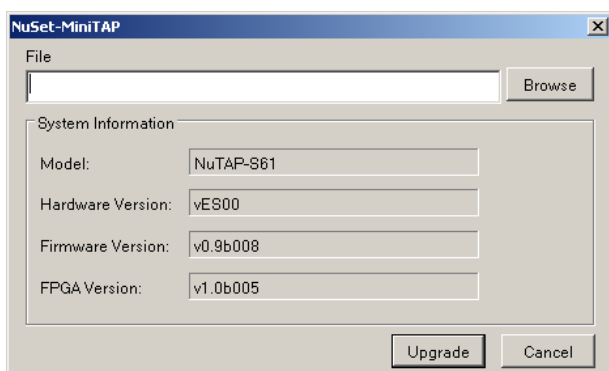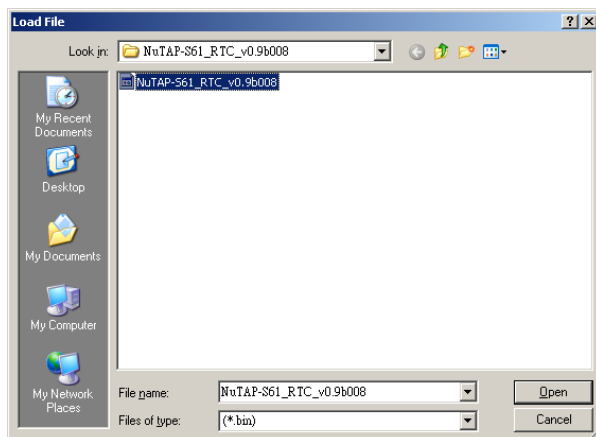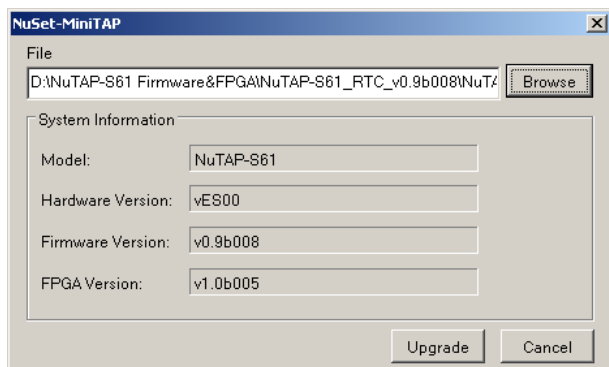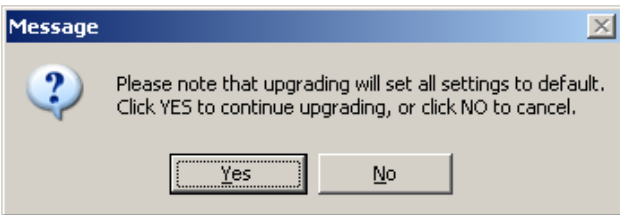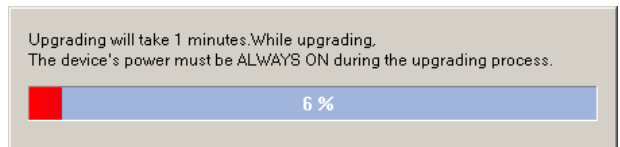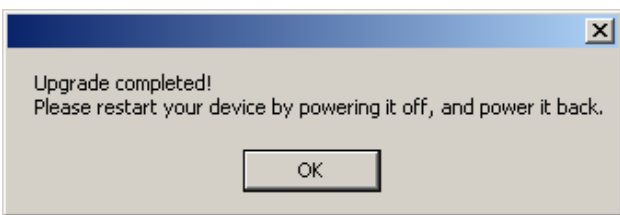
Function Descriptions – Service		
System Upgrade (Contd.)		5. Please note that the upgrading process will set all settings to default. Click **YES** to continue the upgrading process.
		6. NuSet-MiniTAP will start upgrading firmware. Please note that during this process, NuTAP-S61/NuTAP-311's power must be ALWAYS on.
		7. Upgrade complete! NuTAP-S61 /NuTAP-311 will reboot after upgrading firmware.
Terminal Web Connection	The **Terminal Web Connection** function will open your web browser and connect to NuTAP-S61/NuTAP-311's configuration webpage.	

3.1.5. 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**.

3.1.6. Help
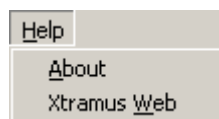
Function Descriptions – Help	
About	An "**About**" window will pop up and show detailed system information.
Xtramus Web	Open your default web browser and access Xtramus Website (www.xtramus.com).

3.2. Quick Launch Buttons
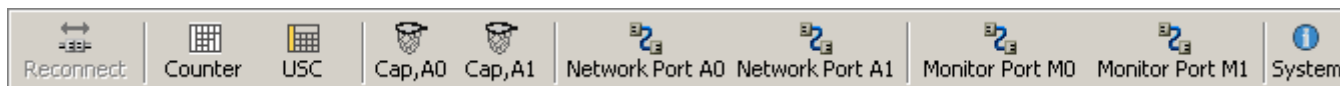
These **Quick Launch Buttons** allow you to reconnect NuTAP-S61/NuTAP-311, view counter/USC (Universal Stream Counter) statistics and chart, set packet capturing criteria, and make Network Port A0/A1, Monitor Port A0/A1 and system configurations. Please refer to the section down below for more detail descriptions regarding to **Quick Launch Buttons**.

3.2.1. Reconnect

Function Descriptions – Reconnect	
	If the connection between your PC and NuTAP-S61/NuTAP-311 is down, a "**Disconnected**" icon will be shown in "**System Connection Status**". Press **Reconnect** button to re-establish the connection between your PC and NuTAP-S61/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**" .

3.2.2. Counter

Function Descriptions – 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 **3.7. Counter Report** on **page 34**.

3.2.3. USC (Universal Stream Counter)

Function Descriptions – USC	
	Each of NuTAP-S61/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 **3.8. Universal Stream Counter (USC) Report** on **page 38**.

3.2.4. Cap, A0/A1

Function Descriptions – Cap, A0/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 **3.1.3. Report**, **Capture Network Port A0/A1 Packets** section on **page 14**.

3.2.5. Network Port A0/A1

Function Descriptions – Network Port A0/A1	
⬛ Network Port A0 ⬛ Network Port A1	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 **3.5. Network Port Settings** on **page 21**.

3.2.6. Monitor Port M0/M1

Function Descriptions – Monitor Port M0/M1	
⬛ Monitor Port M0 ⬛ Monitor Port M1	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 **3.6. Monitor Port Settings** on **page 33**.

3.2.7. System

Function Descriptions – System	
ⓘ System	The **System** button located on the **Quick Launch Buttons** allows you to set NuTAP-S61/NuTAP-311's **IP**, **DNS**, and **TFTP** here in this field. These settings will be used when connecting NuTAP-S61/NuTAP-311 to an existing network and access NuTAP-S61/NuTAP-311 via configuration web pages. For detail description regarding to this function, please refer to **3.1.2. Config**, **System Configuration** on **page 13**.

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3.3. System Status Overview
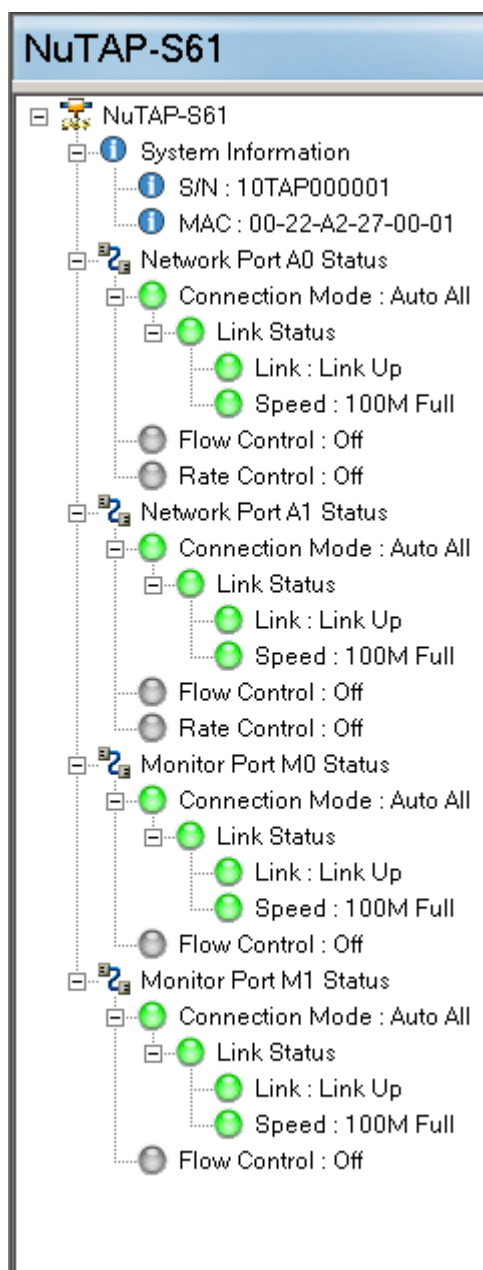
The **System Status Overview** allows you to view NuTAP-S61/NuTAP-311's system information, Network Port A0/A1 status, and Monitor Port M0/M1 status. You can unfold the list with the ⊞ button, and fold the list with the ⊟ button.

3.4. 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

3.5. 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**.
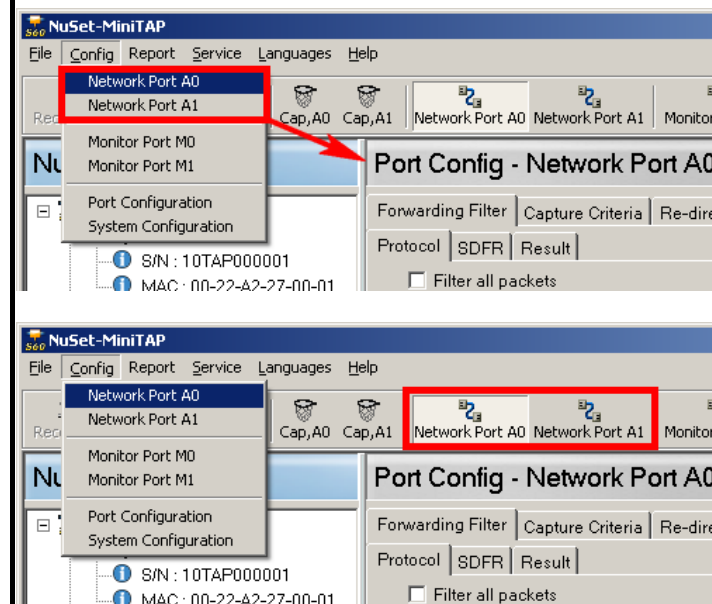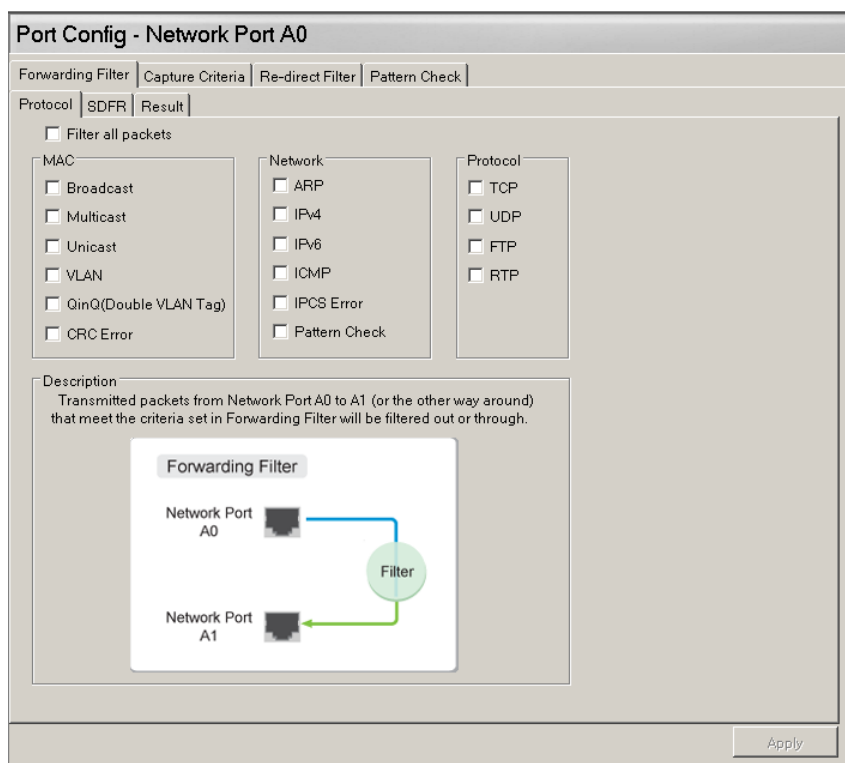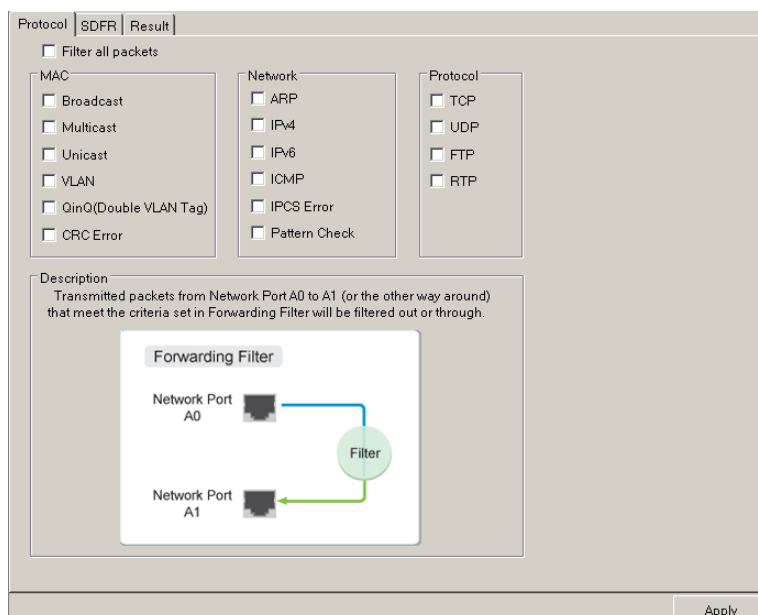
NuSet-MiniTAP's Network Port settings include **Forwarding Filter**, **Capture Criteria**, **Re-direct Filter**, and **Pattern Check**. Please see the sections down below for detail descriptions.

3.5.1. Forwarding Filter
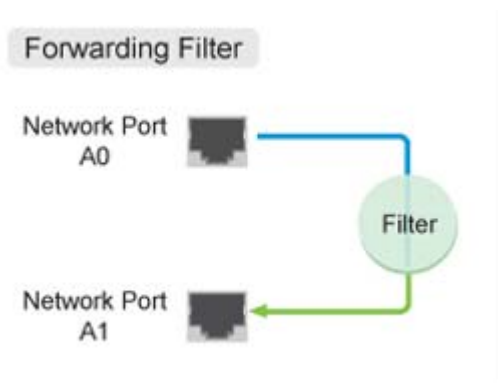
With **Forwarding Filter**, NuTAP-S61/NuTAP-311 will transmit packets from Network Port A0 to A1 (or the other way around) that meet the criteria set in **Forwarding Filter** will be filtered out or through. The **Forwarding Filter** setting screen contains three tab-menus: **Protocol**, **SDFR** (Self-Discover 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	Multicast	Unicast
VLAN	QinQ (Double VLAN TAG)	CRC Error
Protocol – Network		
ARP	IPv4	IPv6
ICMP	IPCS Error	Pattern Check
Protocol – Protocol			
TCP	UDP	FTP	RTP
Protocol – 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.		
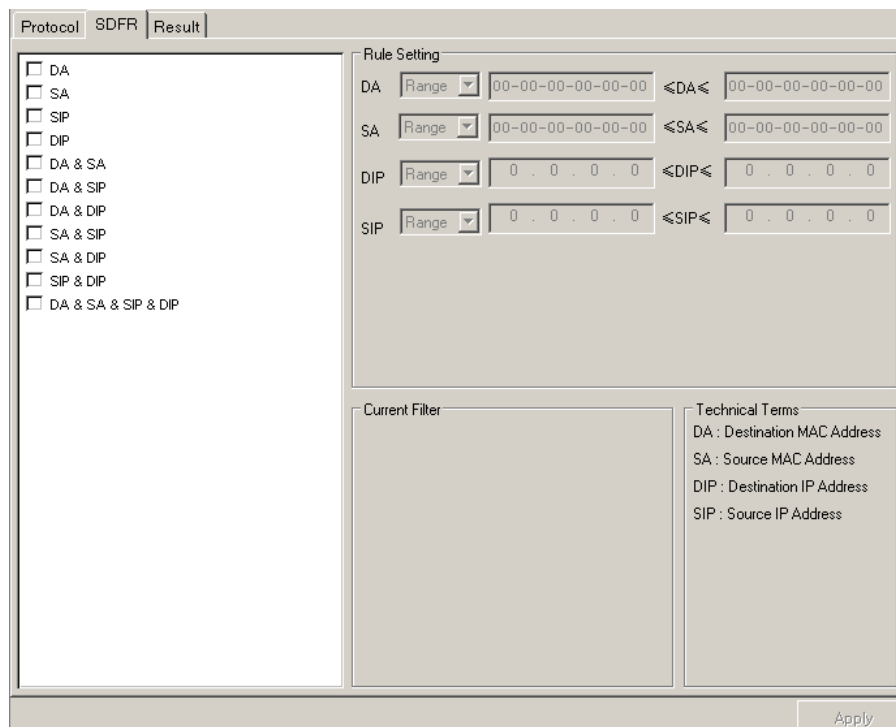
B. Forwarding Filter – SDFR

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: ➢ **DA:** Destination MAC Address ➢ **DIP:** Destination IP Address ➢ **SA:** Source MAC 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.

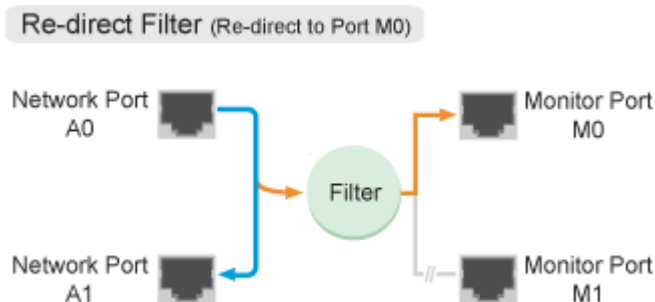## C. Forwarding Filter – Result

```
Protocol | SDFR | Result |

(CRC error)
+
(DA & SA & SIP & DIP)
+
DA(Range)    : 00-00-00-00-00-00   -   FF-FF-FF-FF-FF-FF
SA(Range)    : 11-11-11-11-11-11   -   22-22-22-22-22-22
DIP(Range)   : 192.168.1.1         -   192.168.1.100
SIP(Range)   : 192.168.10.1        -   192.168.10.100




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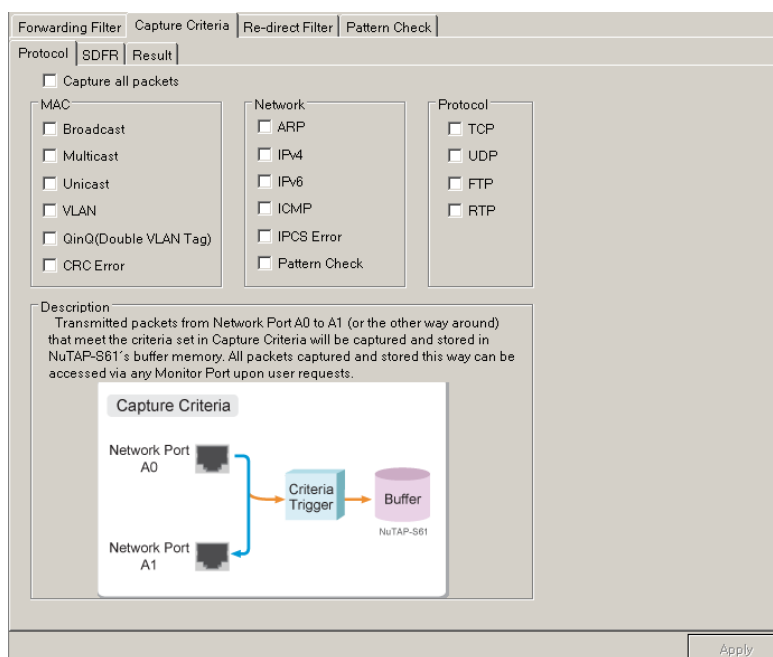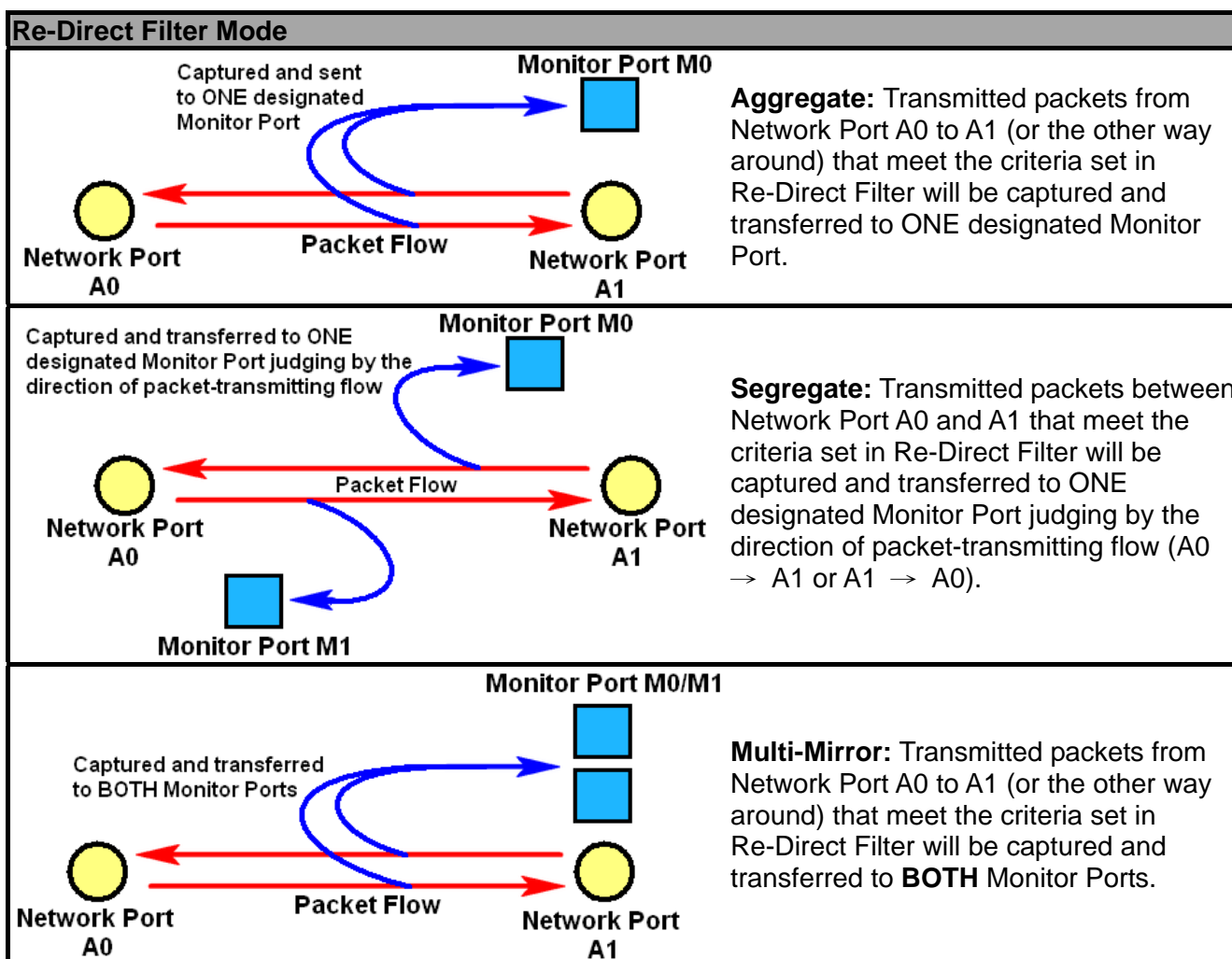
Result
The **Result** page will display the settings you've made in **Protocol** and **SDFR** pages.

3.5.2. Capture Criteria
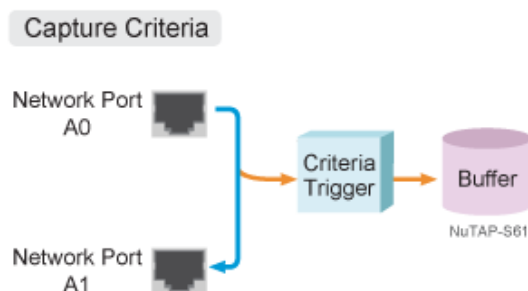
With **Capture Criteria**, transmitted packets from NuTAP-S61/NuTAP-311's Network Port A0 to A1 (or the other way around) that meet the criteria set in Capture Criteria will be captured and stored in NuTAP-S61's buffer memory. All packets captured and stored this way can be accessed via any Monitor Port 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	**Multicast**		**Unicast**
VLAN	**QinQ (Double VLAN TAG)**		**CRC Error**
Protocol – Network			
ARP	**IPv4**		**IPv6**
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.		
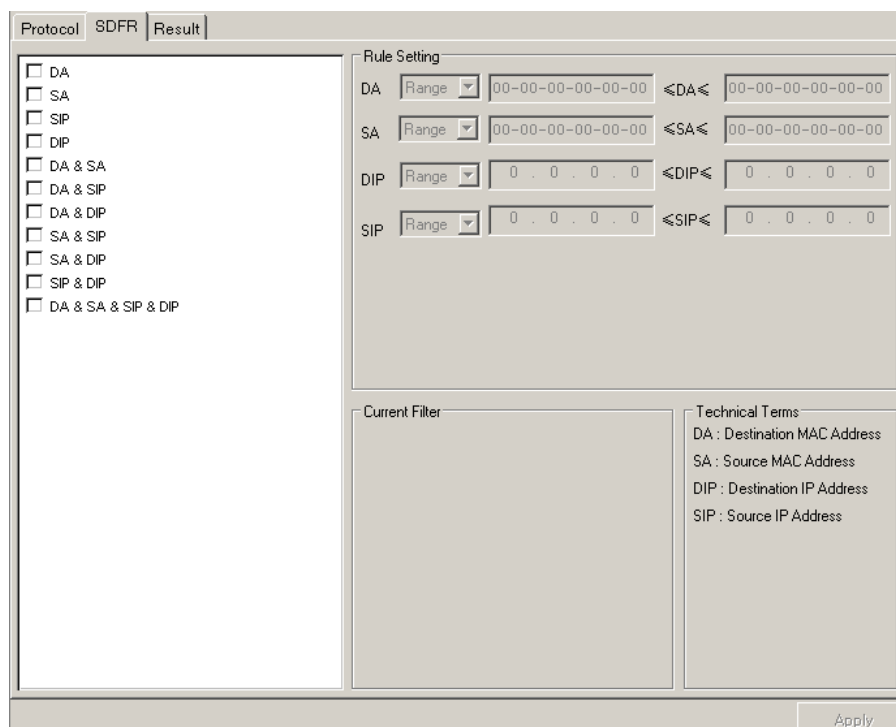
B. Capture Criteria – SDFR

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

```
Protocol | SDFR | Result |

(CRC error)
+
(DA & SA & SIP & DIP)
+
DA(Range)      : 00-00-00-00-00-00    -    FF-FF-FF-FF-FF-FF
SA(Range)      : 11-11-11-11-11-11    -    22-22-22-22-22-22
DIP(Range)     : 192.168.1.1          -    192.168.1.100
SIP(Range)     : 192.168.10.1         -    192.168.10.100




                                                              Apply
```

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

3.5.3. Re-Direct Filter

Re-direct Filter (Re-direct to Port M0)

Network Port A0 → Filter → Monitor Port M0

Network Port A1 — Monitor Port M1

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. ➤ **Re-Direct to Monitor Port M0:** Re-direct packets that meets the criteria from the Network Port to **Monitor Port M0**. ➤ **Re-Direct to Monitor Port M1:** Re-direct packets that meets the criteria from the Network Port to **Monitor Port M1**. 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
VLAN	QinQ (Double VLAN TAG)	CRC Error

Protocol – Network		
ARP	IPv4	IPv6
ICMP	IPCS Error	Pattern Check
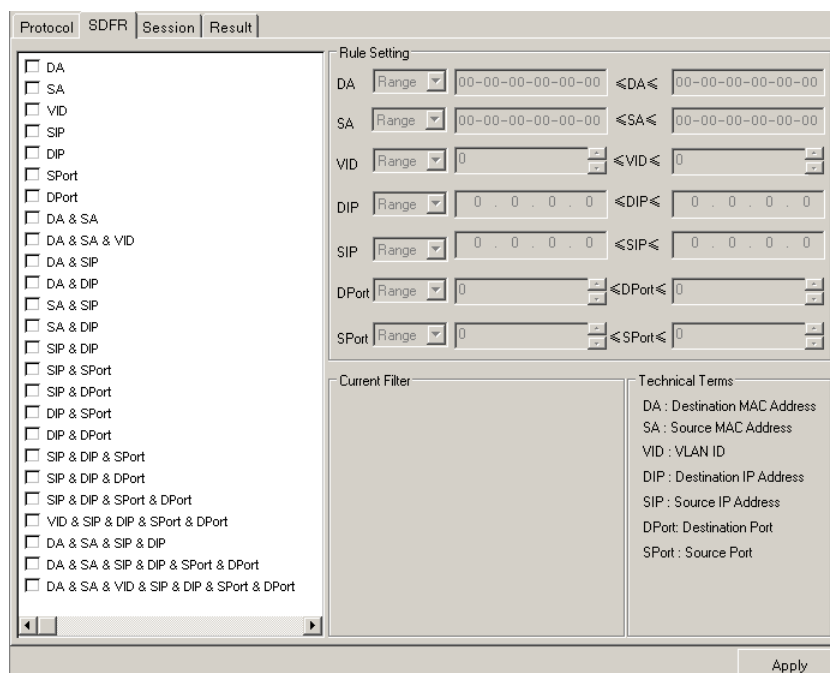
| Protocol – Protocol			
TCP	UDP	FTP	RTP

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.	
	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**, **VID**, **DIP**, **SIP**, **DPort**, and **SPort**.	
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. 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. 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

```
Protocol | SDFR | Session | Result |

(Re-direct to Monitor Port MO)
+
(Broadcast + TCP + UDP)
+
(DA & SA & VID & SIP & DIP & SPort & DPort)
+
(Sesseion)




                                                    Apply
```

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

3.6. 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**.
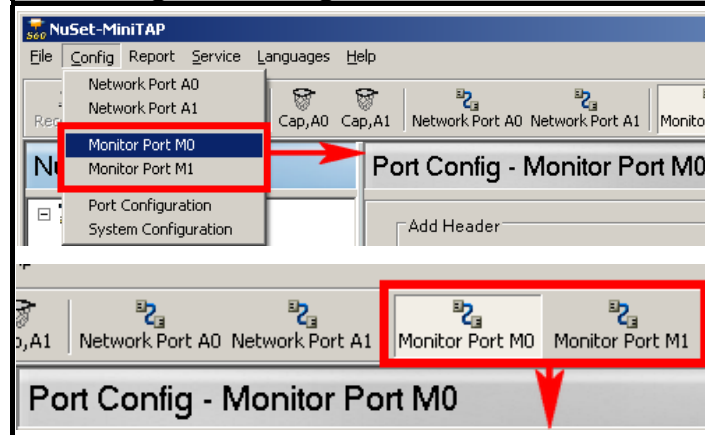
Port Config – Monitor Port M0/M1
The **Monitor Port** setting page allows you to set the headers that you would like to add to packets transmitted from **Monitor Port M0/M1**. NuSet-MiniTAP supports headers including **DA/SA**, **Time Stamp**, **VLAN TAG**, **IP Header**, **UDP Header**, and **IP Fragment**. 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)
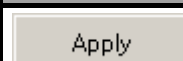
Button	
	Apply: Apply and save the changes you've made on this page. After making any settings on this page, you must click the **Apply** button or all changes will be lost.

3.7. Counter Report

You can view NuSet-MiniTAP's counter report/chart of NuTAP-S61/NuTAP-311's Network Port and Monitor Port with **Counter Report**. There are two ways to access **Counter Report**:
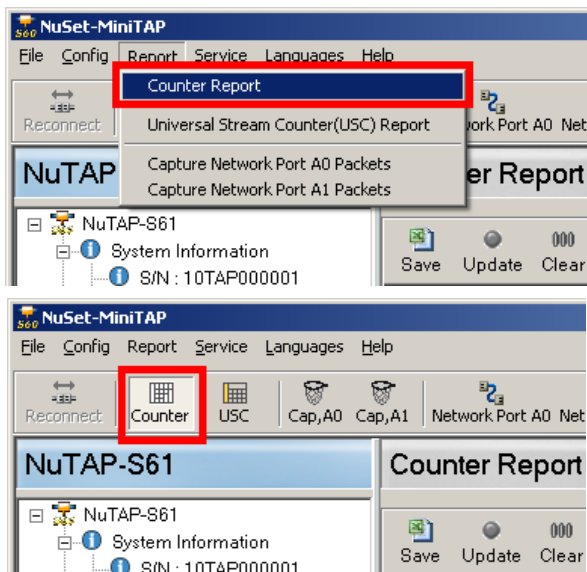
Accessing Counter Report	
	• Click **Counter Report** located on **Report** in the **Menu Bar**.
	• Click the **Counter Report** button located on **Quick Launch Buttons**.

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**.

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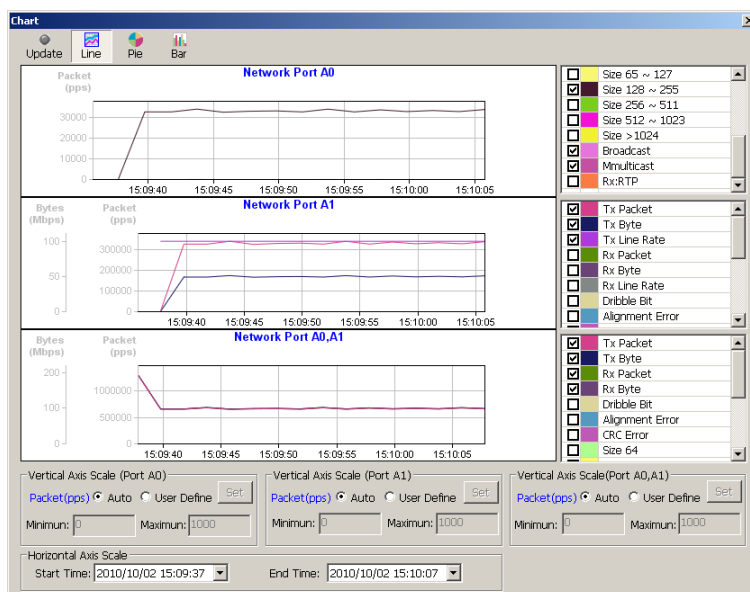
The **Line Mode** displays the statistics about the of packets flow through **Network Port A0**, **Network Port A1**, and **Network Port A0/A1**. To display the statistics as line on the chart, please click the check box of that statistics.

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

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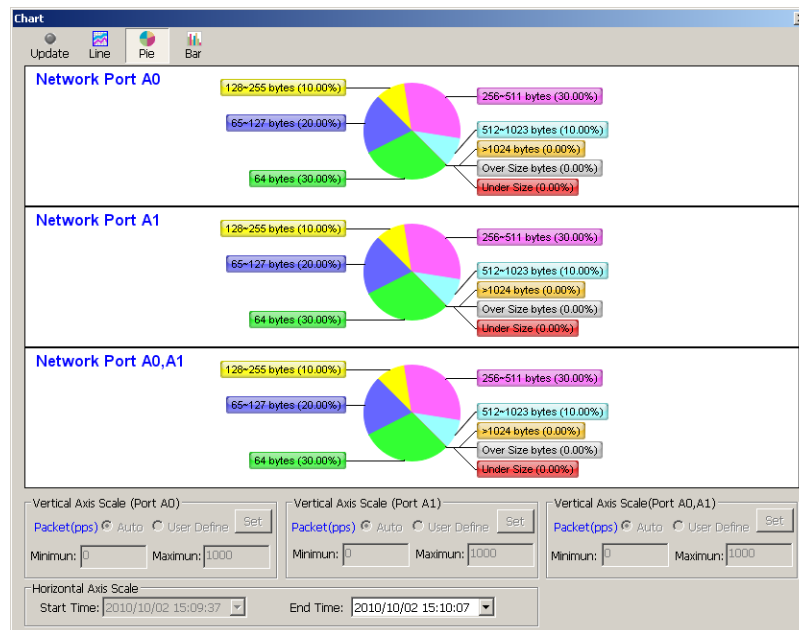
The **Pie Mode** displays the statistics regarding to the lengths of packets flow through **Network Port A0**, **Network Port A1**, and **Network Port A0/A1**. Packets are categorized into the following categories: **64 bytes**, **65~127 bytes**, **128~255 bytes**, **256~511 bytes**, **512~1023 bytes**,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

Chart (Contd.)
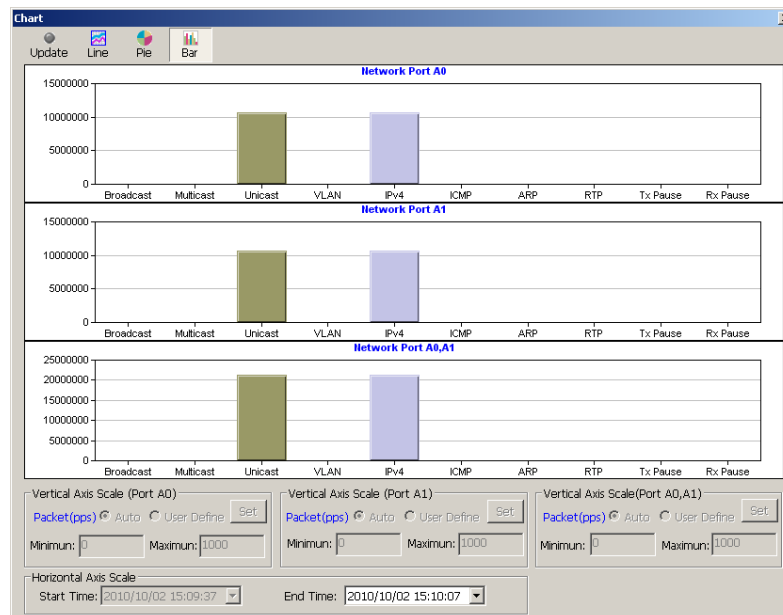
Bar Mode

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

The **Network Port** button allows you to view **Counter Report** of NuTAP-S61/NuTAP-311's **Network Ports**.

The **Monitor Port** button allows you to view **Counter Report** of NuTAP-S61/NuTAP-311's **Monitor Ports**.

3.8. Universal Stream Counter (USC) Report

Each of NuTAP-S61/NuTAP-311's **Network Port** 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**:
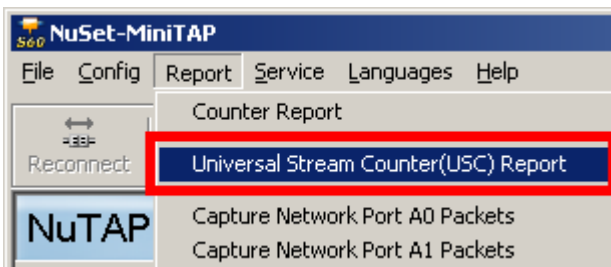
- Click **Universal Stream Counter (USC) Report** located on **Report** in the **Menu Bar**.
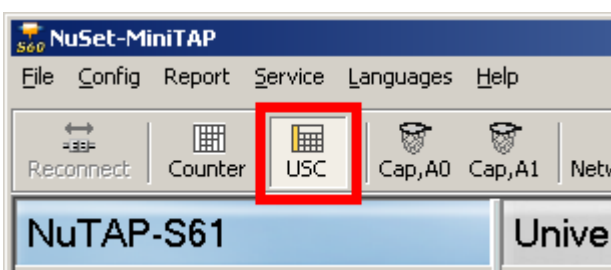
- Click the **Universal Stream Counter (USC) Report** button located on **Quick Launch Buttons**.

Please see the sections down below for detail description regarding to **Universal Stream Counter Report**.
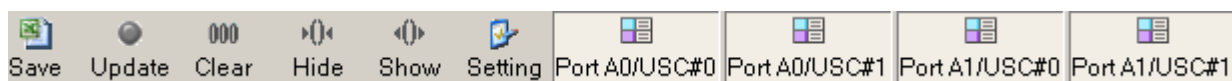
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E-mail: sales@xtramus.com
Website: www.Xtramus.com

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**.
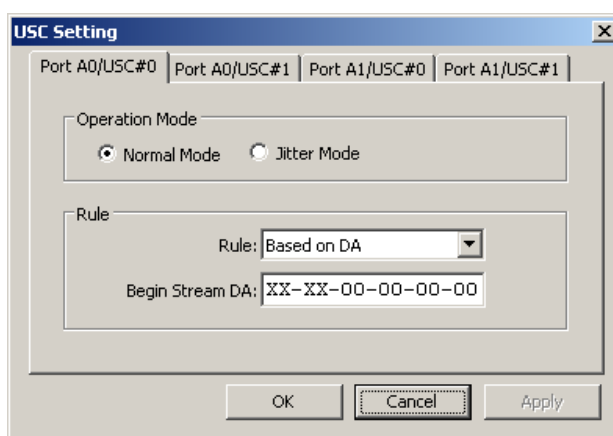
Setting
	
	A **USC Setting** window will pop up if you click the **Setting** button, allowing you to set USC criteria for **Port A0/USC#0**, **Port A0/USC#1**, **Port A1/USC#0**, and **Port A1/USC#1**. To choose the Universal Stream Counter you would like to configure, please click the tab-menu on the upper part of the **USC Setting** window.
	
	➢ **Operation Mode**
	  • **Normal Mode:** The Universal Stream Counter will run under **Normal Mode**.
	  • **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:

<div align="center">

Delta Time (ns)	Current	Current time interval between packets
	Maximum	Maximum time interval between packets
	Minimum	Minimum time interval between packets
Jitter (ns)		Max Delta Time – Min Delta Time = Jitter

</div>

➢ **Rule**
- **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.
- **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.

➢ **OK:** Apply the changes you've made and exit.
➢ **Cancel:** Cancel the changes you've made and exit.
➢ **Apply:** Apply the changes you've made without exit.

Universal Stream Counter (USC) Control Buttons Descriptions

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**.