NuWIN-RM User's Manual

USM Ver1.0



Foreword

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Revision History

Date	Doc Ver.	Software Ver.	History	
2017/05/08	1.0	V2.0b006	First draft version	



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1. NuWIN-RM Overview

NuWIN-RM provides a powerful and sophisticated virtual front panel to manage the NuStreams chassis. Each test port can be independently configured with parameters to define streams, filters, and capture capabilities. Traffic for various network protocols can be customized, transmitted, and received on each port. Comprehensive statistics provide users an in-depth analysis of the performance of the DUT (Device under Test).

NuWIN-RM has a flexible and intuitive interface to control test modules in a single or multiple chassis through a click of the mouse. Any combination of test modules can be inserted into NuStreams chassis and be instantly identified.

Each port can be configured to analyze and count packets to match user-defined criteria, such as source and destination MAC addresses, custom patterns, errors, and frame size ranges. Each port is equipped with capture memory, which can store packets in real time. A comprehensive set of user-defined triggers and filters are available based on source and/or destination MAC and/or IP addresses, data patterns, and error conditions.

NuWIN-RM is designed to allow multiple users to access individual ports of every test module installed. This feature enables users to execute their own tests on the ports assigned to them without disrupting other users on the system.

NuWIN-RM is designed for Xtramus XM-RM series module cards. The table down below lists the XM-RM module cards that are supported by NuWIN-RM.

Module Cards Support NuWIN-RM				
Module Card	Max Rate			
XM-RM661/671/681	100M			
XM-RM731/751/761/781	1000M			
XM-RM881/881-2/891	10G			
* Note: NuStreams-2000i and NuStream	ms-600i are required as well.			

Also, please make sure that your PC meets the requirements listed in the table down below before

OS	Windows XP	Windows Vista/Windows 7
RAM	512MB RAM	1GB RAM
CPU	Pentium 1.30	GHz or Higher
HDD	10 GB Avail	able Space

* Note: Large amount of data will be generated while running NuWIN-RM. It is recommended to reserve enough available Hard-Disk space to store these data.

installing NuWIN-RM.



2. Installing/Uninstalling NuWIN-RM

Please follow the steps down below to install NuWIN-RM.

stalling NuWIN-RM		
	1.	Double-click NuWIN-RM installation progra and start the installation process.
NuWIN-RM v2.0b006 - InstallShield Wizard Welcome to the InstallShield Wizard for NuWIN-RM v2.0b006 The InstallShield(R) Wizard will allow you to modify, repair, or remove NuWIN-RM v2.0b006. To continue, dick Next. www.nuwIn-RM-v2.0b006 . To continue, dick Next.	2.	Install Wizard is starting to install NuWIN-RM. If you would like to cancel installation, click Cancel , or Click Next to continue installation.
IVWIN-RM v2.0b006 - 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 acree with these license terms. I accept the terms in the license agreement I accept the terms in the license agreement InstallShield Cancel	3.	Choose "I accept the terms in the license agreement" and click Next to continue the installation. Click Back to return to the previous step. Or if you do not agree with t end user license agreement, please click Cancel to exit the Install Wizard.



Installing NuWIN-RM	
NuWIN-RM v2.0b006 - InstallShield Wizard Destination Folder Click Next to install to this folder, or click Change to install to a different folder. Install NuWIN-RM v2.0b006 to: C:\Program Files (x86)\NuStreams\ Change InstallShield (Back Next > Cancel	 Set the file path where you want to install NuWIN-RM.
Ready to Install the Program The wizard is ready to begin installation. Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard. InstallShield Back Click Cancel to exit the wizard.	 Click Install to continue the installation. If you want to review or change any of your installations settings, click Back. Or Click Cancel to exit the wizard.
NuWIN-RM v2.0b006 - InstallShield Wizard InstallShield Wizard Completed Image: Complete Comple	 Click Finish, then the installation of NuWIN-RM is completed.

*Note: Due to different Operating Systems or system settings, warning messages might pop up when installing NuWIN-RM. When this occurs, please choose the options on these pop-up warning messages that allow you to continue installing NuWIN-RM.



Installing NuWIN-RM

<image/> <image/> <image/> <section-header><text><text><text></text></text></text></section-header>	7.	If your PC does not have WinPcap installed, a WinPcap Installer window will popup. Click Next to get ready to install, or click Cancel to stop. For more detail information regarding to WinPcap, please visit their webpage at:www.winpcap.org.
WinPcap 4.1.3 Setup License Agreement Hease review the license terms before installing WinPcap 4.1.3. Press Page Down to see the rest of the agreement. Depyright (c) 1999 - 2005 NetGroup, Politecnico di Torino (Italy). Copyright (c) 2005 - 2010 CACE Technologies, Davis (California). Copyright (c) 2010 - 2013 Riverbed Technology, San Francisco (California). Al rights reserved. Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. Redistributions in binary form must reproduce the above copyright notice, this list of the agreement to install WinPcap 4.1.3. Nullsoft Install System v2.46 <u>Egack I Agree Cancel</u>	8.	Review the license agreement before installing. Click I Agree to continue. It is necessary to accept the agreement to install WinPcap.
WinPcap 41.3 Setup WinPcap 41.3 Setup Installation options Please review the following options before installing WinPcap 4.1.3 Automatically start the WinPcap driver at boot time Nullsoft Install System v2.46 < Back	9.	You can set if you would like to start WinPcap driver when booting PC by clicking the check-box. Click Install to continue.



Installing NuWIN-RM	
Installing NuWIN-RM WinPcap 4.1.3 Setup Installing Please wait while WinPcap 4.1.3 is being installed. Extract: Packet.dll 100%	10. WinPcap is installing.
Nullsoft Install System v2.46	
WinPcap 4.1.3 Setup WinPcap 4.1.3 Setup WinPcap 4.1.3 has been installed on your computer. Click Finish to close this wizard.	11. WinPcap installation completes. Click Finish to close the wizard.





You can uninstall NuWIN-RM by:

Uninstallin	g NuWIN-RM					
	Java Maintenance Microsoft Office Microsoft Office Microsoft WebMatrix Moxtra APMPT-4 v2.1b027 MPT-IGMP v1.0b014 NuApps-IGMP-RM v1. NuApps-IGMP-RM v1. NuApps-MultiUnits-F NuApps-MultiUnits-F NuApps-MultiUnits-V NuApps-MultiUnits-W NuApps-MultiUnits-V NuApps-POE v1.1b01 NuApps-POE v1.1b01 NuApps-POE v1.1b01 NuApps-POE v1.1b01 NuApps-POE v1.1b01 NuVIN-RM v2.0b06 WuWIN-RM v2.0b06 NuWIN-RM v2.0b06 NuWIN-RM v2.0b06 NuWIN-RM v2.0b06 NuWIN-RM v2.0b06 NuWIN-RM v2.0b06 NuWIN-RM v2.0b06 Sorce Insight 3 Spirent Communications Startup WeChat WinRcap WinRAR Back Search programs and files	2b054 1.0b010 RM v1.1b030 WFI v0.9b021 WFI v0.9b020 PON v0.1b003 2 3018 006 RM v2.0b006 nus	Xtramus-w Documents Pictures Music Games Computer Control Pan Devices and Default Prog Help and Su Run	el Printers prams pport	• Click Prog →Un	Start->All grams->NuStreams->NuWIN-RM hinstall NuWIN-RM.
Control Panel File Edit Verev Tools Tools Control Panel Control Panel Control Panel Control Panel Control Control Tools Control Control Tools Control Contro Control Control Contro Contro Contro Co	Programs Programs and Features Uninstall or change a program To uninstall a program, select 8 from the list and then c Organis Uninstall Orange Repair Ham Distribution (C - 3022 Reducebackie (dd) - 11.0620 Distribution (C - 3022 Reducebackie (dd) - 11.0620	Icit Uninstall Change, or Repair.	Installed Gr 2014/07/25 2014/07/25 2014/07/2 2	Size Version 17 5 M 11.04(108.0 17 5 M 11.04(108.0 17 5 M 11.04(108.0 17 5 M 10.04(108.0 10 MM 10.04(108.0 10 MM 10.04(108.0 10 MM 10.04(108.0 10 MM 10.04(108.0) 10 J MM 6.22(101 41.02(100.0) 11.04(108.0) 11 L627 7.04.04(302 11 MM 10.105(100.0) 6.1 10.05(100.0)	 Go to progr 	o the Control Panel and uninstall ram.



3. NuWIN-RM Function Overview

3.1. Starting NuWIN-RM

Before starting NuWIN-RM, the DUT, your PC, and NuSteams chassis shall be connected properly as shown in the picture down below:



There are two ways to start NuWIN-RM:





NuWIN-RM Demo Mode

If your PC is not connected with NuSteams chassis, you can still run NuWIN-RM under **Demo Mode**. Almost all NuWIN-RM's functions are available under **Demo Mode**.

Note: Demo Mode is for system demo purposes only, and does not serve any testing purposes at all.





Please follow the steps down below to start NuWIN-RM and NuServer properly.

Starting NuServer

Connect To Nuse	rver	-
Nuserver Location		
Occalhost		
Remote Host	127.0.0.1	
	Connect	Cancel
Connect To Nuse	rver	
Connect To Nuse Nuserver Location	rver	
Connect To Nuse Nuserver Location © Localhost	rver	
Connect To Nuse Nuserver Location © Localhost @ Remote Host	rver	
Connect To Nuse Nuserver Location C Localhost Remote Host	127.0.0.1 127.0.0.1	

Network Interface Information					
Index	NIC Description	MAC Address	^		
1	VIA Rhine III Fast Ethernet Adapter	00-40-05-46-32-61			
2	Realtek PCIe FE Family Controller	00-EA-01-15-32-51			
			-		



When starting NuWIN-RM, a "**Connect To NuServer**" window will pop up and ask how you are going to connect to NuServer.

- Local Host: Choose this option when you're running NuWIN-RM from NuStreams-2000i IPC module or a PC that's connected to NuSteams chassis via an RJ45 cable.
- Remote Host: Choose this option when you're running NuWIN-RM from other PC located on the network. Choose the IP address which is assigned from NuSteams chassis from the scroll-down menu, or choose **demo** to enter NuWIN-RM's Demo Mode.
- Connect/Cancel: Click the Connect/Cancel button to connect to NuSteams chassis or cancel starting NuWIN-RM.

A "**NuServer-NIC Information**" window will pop up. Please select the NIC (Network Interface Card) which is connected to NuStreams -2000i/ 600i's from the **Network Interface Information** table, and click **OK**. If you're using NuStreams-2000i's IPC module, please choose "**Realtek RTL8139 Family Fast Ethernet**".

NuServer will connect to the daughter boards, and NuWIN-RM will start as well.



Starting NuServer		
NWUH-RM File View Centrol Statistics Tool Language Help File View Centrol Statistics File View Centr	I for huStreams System	You now have accessed to NuWIN-RM's main display window.
	ii.	



3.2. NuWIN-RM/NuServer Overview

NuWIN-RM Main Window



Nu	WIN-RM Main Screen				
Α	Menu Bar	The Menu Bar allows you to make settings about test criteria, load/save settings you've made, and change language displayed.			
в	Quick Launch Buttons	The Quick Launch Buttons allow you to reconnect your PC to NuStream-2000i/600i, open/save test settings, make test configurations, and view test reports.			
С	Function View	by clicking the Function View , you can view system information, making test configurations, or view test reports on the Main Display Pane.			
D	Status Icon	The Status Icon shows the running status of NuWIN-RM. No test is underway. Test is running.			
Е	Main Display Pane	You can make detail configurations and view real-time testing diagrams on the Main Display Pane .			



NuServer

lum	ID (Chassis, Slot, Port)	Card Type	2		~	
	(0, 1, 1)	XM-2S10				
2	(0,8,1)	XM-RM781		Module Card		
3	(0, 8, 2)	XM-RM781				
ŧ	(0,8,3)	XM-RM781		Information		
5	(0, 8, 4)	XM-RM781				
Select	ed NIC Information		Force MAC Add	e Disconnect ReConnec	- - -	-Connection Function
Realtek	PCIe GBE Family Controller		00-E0-4C-6	58-00-24		 NIC Information

Description	
Module Card Information	This section displays the information regarding to the module cards that are installed on NuSteams chassis. Module Card IDs are showed as the format of (X, Y, Z) while X is the chassis ID (which is displayed on NuSteams chassis), Y is the slot number where this module card is installed, and Z is the available port number located on the module card.
Connection Function	You can reconnect a link down status or force to disconnect your NuStreams-600i/2000i to your PC.
NIC Information	This section displays the detail information (including NIC Model name, NIC's MAC address) regarding to the selected NIC.
NuServer Version	This section displays the version of your NuServer.



4. Menu Bar

File View Control Statistics Tool Language Help

NuWIN-RM's **Menu Bar** includes configuration options such as **File**, **View**, **Control**, **Statistics**, **Language**, and **Help**. Please refer to the sections down below for detail information regarding to each configuration option.

4.1. File





File		
Save Configurations	Sver As Image: Computer service	You can save the current configuration settings to your PC by choosing " Save Configurations " from the Menu Bar . All configuration files are saved in the format of " * . nrc ".
Exit	Message All statistics will be lost! Click YES to quit NuWIN-RM, and NO to cance! Yes No	Click Yes to exit NuWIN-RM, or click No to cancel. A prompt pop-up window will ask if you would like to close NuServer as well.





4.3. Control



Control Statistics Tool Langu Reserve/Release Module

Force to Release Module

Control			
Reserve/Release Module	Reserve/Release Modules Unlock Module (Chassis, Board, Port) (0, 2, 1) - XM-RM731 (0, 2, 2) - XM-RM731 (0, 3, 1) - XM-RM751 (0, 3, 2) - XM-RM751 (0, 4, 1) - XM-RM751 (0, 4, 1) - XM-RM751 (0, 4, 2) - XM-RM751 (0, 5, 1) - XM-RM761 (0, 5, 2) - XM-RM761 (0, 5, 2) - XM-RM761 (0, 5, 2) - XM-RM781 (0, 5, 4) - XM-RM781 (1, 2, 2) - XM-RM781 (2, 3, 2) - XM-RM781	Lock Module (Chassis, Board, Port) (0, 3, 4) - XM-RM751 (0, 4, 4) - XM-RM761 >> < < < < < < <	A Reserve/Release Modules window will pop up if you choose Reserve /Release Module from the Menu Bar . You can choose the module cards you would like to reserve or release on the Reserve/Release Modules window. For detailed information, please refer to 7. Reserve/Release
Force to Release Module	Force to Release Mod	M-RM781 M-RM781 OK Cancel	Generally, the Force to Release Module function is gray. But if the function turns black, it means some active ports are locked so as to not available to use. In this case, please click this function to pop up the window on the left to force release the locked ports.



4.4. Statistics

Test Instruments and Networks

Statistics Tool Language Help Main Counter Tx Stream Counter Rx Stream Counter Stream Counter Summary







|--|



ΤοοΙ	
	IFG Converter Speed(Mbps): 1000 Init: %/Utilization rsec usec Get IFG Value Get Unit Type Exit packt/sec %/Utilization DataBits/sec FrameBits/sec TotaBits/sec TotaBits/sec TotaBits/sec If Time Line Rate
IFG Converter	 IFG Converter allows the user to converter the frame gap among different units. Speed: set the network speed from the scroll down menu. Frame Length (w/o CRC): Set the length of the packet by inputting the desired value. Unit: Select the unit from the scroll down menu. Rate: transmission rate. Click the volution on the right, you can view the frame gap in other units automatically converted by this tool and displayed in the pop-up window. Get IFG value: Click this button, the frame gap in unit of Bit Time will be displayed in the down area. Get Unit Type: Click this button, the unit type will be displayed in the down area.
	Get IFG Value Get Unit Type Exit Unit Type = usec ► Exit: Exit this function and close IFG Converter window.





4.6. Language

Language Help

English

Chinese Simplified

Language	
English	NuWIN-RM supports 2 different languages for its UI.

Note: As to the current version of NuWIN-RM, only English UI is supported.



4.7. Help



Help

About...

System Requirements...

Xtramus Web

Help						
		About			×	
		NuWIN-RM v2.0b006(2017/4/25) Copyright(C) 2011 - 2017 Xtramus Technologies. All Rights Reserved				
About						
		Model		MPT-600i		
	An " About " window will non up and show datailed	Agent/Custome	er	Xtramus Age	nt	
	All About window will pop up and show detailed	S/N		12353245	12353245	
About	system information.	PCB Version		MP04		
	OK : Click this button to exit the window	Hardware Versi	on	v0.9b002		
		Firmware Versio	on	v1.3b021		
		HW License		Normal		
		HW Upgrade/Us	age LIC.Valid for	2017-12 / Ur	limited	
				Normal		
		SW Upgrade/Us	SW Upgrade/Usage LIC.Valid for		limited	
		API Version	API Version			
		OK				
Quarteria	A " System Requirements " window will pop up and show the requirements for your PC and the	Operation Platform - Microsoft(R) W - Pentium 1.3GH - 512/MB of RAM for - 10GB of availab Xtramus Instrument Module Name	Requirements indows XP/Vista/7 z or higher for Windows XP Windows Vista/7 ble hard disk space Requirements FPGA	Firmware	PROM	
System	EPGA/Eirmware/PROM of the module cards	XM-RM661	v3.1b034	v1.7b003	v1.6b001	
Requirements		XM-RM671	v3.1b034	v1.7b003	v1.6b001	
rio qui o nonico		XM-RM681 XM-RM731	v3.10024 v3.0b003	v1.7b003	v1.60001	
		XM-RM751	v4.0b006	v1.7b003	v1.6b001	
		XM-RM761	v4.0b006	v1.7b003	v1.6b001	
		XM-RM781	v4.0b006	v1.7b003	v1.6b001	
		XM-RM871	v1.4b014	v0.9b030	v1.6b001	
		XM-RM881	v1.4b014	v0.9b030	v1.6b001	
		XM-RM881-2	v1.4b014	v0.9b030	v1.6b001	
		хп-кп891	V1.40000	v1.70005	V1.00001	
Xtramus Web	Access Xtramus website (www xtramus com)	L				



5. Quick Launch Buttons



These Quick Launch Buttons allow you to reserve/release module cards, view counter statistics,

browse/configure system settings, and perform Ping commands. Please refer to the section down below for more detail descriptions regarding to **Quick Launch Buttons**.





Save Config			
	Config	 ↓ 4 Search Config 	
	Organize - recent Pages	E • 0	
	Favorites Documents library Carrig Carrig	Arrange by: Felder •	
	Connects Connects Deconnects NullW-BM.mcc NullW-BM.mcc NullW-BM.mcc Attrace Attrac		Save the current configuration as the ".nwc" file.
	File name	•	
	Save as type: [*.mvc)	•	
	Hide Folders	Save Cancel	
		11	



Main Counter

	n Counter 100 💵 🗟 🖕 🖽 🗷 📲 🛏 🚽				
	A1 • = P	ort			
	Show	В	c	Linke	d Ports
1	Port	(240, 6, 1)	(240, 6, 2)	Transmit	
2	Module	XM-RM681	XM-RM681	Grathurs	
3	Tx Control			Capture	
4	Capture			Group	
5	Link	Link Up	Link Up	Transmit	
6	Speed	Auto 100M Full	Auto 100M Full	Conturn	
7	Group	0	0	Capture	
8	Tx Packet	0	0	6 Group	
9	Tx Byte	0	0	Transmit	
10	····· Tx Packet Rate	0	0	Canture	
11	····· Tx Line Rate (Mbps)	0.00	0.00	coptare	
12	Tx Utilization(%)	0.00	0.00	🔞 Group	
13	···· Rx Packet	51	52	Transmit	
14	Rx Byte	6,273	6,396	Canture	
15	Rx Packet Rate	0	0		
16	Rx Line Rate (Mbps)	0.00	0.00	Group	
17	Rx Utilization(%)	0.00	0.00	Transmit	
18	Collision(Sum)	0	0	Capture	
23	Error & Loss Packet(Sum)	0	0	-	
30	Packet Size Statistics (Sum)	51	52	G Group	
39	- Layer2 Packet Counts(Sum)	54	55	Transmit	
45	Network Layer(Sum)	0	0	Capture	
		0	0	-	

A **Main Counter** window will pop up if you press the **Main Counter** button on the **Quick Launch Buttons**.

You can view counter reports, start/stop transmitting on the **Main Counter** window.

For detailed information, please refer to **6.5. Main Counter**.



Tx Stream C	ounte	r					
Tx Stream Counter	Tx Str 000 100 (240, 6, 000 1 1 2	eam Cour ()) - XM-RM681) - XM-RM681) - XM-RM681 () A () A Stream # 1	ater (240, 6, 2) - XM-RM68	1 (240, 6, 3) - XM- tam # C Bytes 870,411,712	RM681 (240 D X-ID	, 6, 4) - XM-RM681 E	Tx Stream Counter allows the user to view the Tx test data of his interest. For detailed information, please refer to 6.7.1.Tx
	4						Stream Counter.

Rx Stream C	oui	nter				
Rx Stream Counter	Rx \$	Stream Counter ■ ■ ► ■ , 6, 1) - XM-RM681 (240, 000 ♀ ► ■ ↔ ⊕ ■ A1	6, 2) - XM-RM681 (240	0, 6, 3) - XM-RM681 (:49 Bytes)	240, 6, 4) - XM-RM681	Rx Stream Counter allows the user to view the Rx test data of his interest.
		А	В	с	D	For detailed information,
	1	XID # (offset: 49 Bytes)	Line Rate(Mbps)	Packets	Bytes	Stream Counter
	3	0	100.00	1,417,963	90,749,632	otream oounter.
		1				



Stream Counter Summary

	Str	eam Counter Sun 000 ﷺ ► ■ ﷺ ﷺ ₹	mmary ↓ ↓ = Port			
		A	В	С	D	E
Stream	1 2	Port	Condition	Tx Packets	Tx Bytes	Rx Line Rate(Mbps)
Counter	3	(240, 6, 1) - XM-RM681	Tx Stream # (XID : 0) : 1	60,047,876	3,843,064,128	-
	4	(240, 6, 1) - XM-RM681	Rx XID # (offset: 49 Bytes): 0	-	-	100.00
Summary	5	(240, 6, 2) - XM-RM681	Tx Stream # (XID : 0) : 1	25,955,950	1,661,180,800	-
5	6	(240, 6, 2) - XM-RM681	Rx XID # (offset: 49 Bytes): 0	-	-	100.00
	7	(240, 6, 3) - XM-RM681	Tx Stream # (XID : 0) : 1	0	0	-
	8	(240, 6, 3) - XM-RM681	Rx XID # (offset: 49 Bytes): 0	-	-	0.00
	9	(240, 6, 4) - XM-RM681	Tx Stream # (XID : 0) : 1	0	0	-
	10	(240, 6, 4) - XM-RM681	Rx XID # (offset: 49 Bytes): 0	-	-	0.00

Stream Counter Summary

allows the user to view the test data of his interest.

For detailed information, please refer to **6.7.3. Stream Counter Summary**.

Capture Bu	ffer	
	Captre Buffer (240, 6, 1) - VM-RM681 (240, 6, 2) - XM-RM681 (240, 6, 3) - XM-RM681 (240, 6, 4) - XM-RM681 (240, 6, 1) - VM-RM681 (240, 6, 2) - XM-RM681 (240, 6, 3) - XM-RM681 (240, 6, 4) - XM-RM68 (240, 6, 4) - XM-RM68 (240, 6, 4) - XM-RM68 (240, 6) - XM-RM68 (240, 6) - XM-RM68 (240, 6) - XM-RM68 (240, 6) -	A Capture Buffer window will pop up if you press the Capture Buffer on the Quick Launch Buttons . You can set capture buffer criteria or start/stop capturing packets here. For detailed information, please refer to 6.8. Capture Buffer .





Ping IPv4/IPv6 Function



Get DUT MAC			
	Router NAT	LAN LAN port settings of the router under test. DHCP Server On Source NAC Source IP	
	NuStreams Setting WAN Settings of the NuStreams port connecting to the router WAN port (240, 5, 1) - XM-RM751 (*) Source MAC 00-22-42-00-00-01 Source PP UDP SPort(dec) 9000 DHCP Timeout(sec.) 100 VLAN	LAN Source MAC 00-22-A2-00-00-22 Source IP UOP SPort(dec) 6000 DHCP Timeout(Sec.) 100 VLAN	Test the NAT function of the DUT.
	WAN Port First Obtain IP Note 1. The gray columns will be filed automatically according to the test r 2.With Keep Alve button activated, the system will transmit low flow smoothness of the link.If the correct configuration is not yet obtaine	esults. v data by correct configuration to ensure the d, no actions should be taken.	



6. Function View



The **Function View** allows you to view system information, making configurations, and check test reports. You can fold/unfold the tree style tab by clicking $\Box/\textcircled{\pm}$ icons on the System Info /Configuration List.

As shown in the picture above, Module Info/Configuration's tree style tab menu are divided into two categories: **NuWIN-RM** and **Chassis ID**.

> NuWIN-RM

Unfold NuWIN-RM, You can see the figure down below.



Chassis ID

Chassis ID means the ID number of the chassis, which will exactly be displayed behind the colon.



The Chassis ID list contains the main functions of NuWIN-RM, including Module Information, Reserved Ports, Main Counter, Browse Setup, Stream Counter, Capture Buffer, Group Setup, Ping Function, DUT Clock Measurement and Pre-configuration. For detailed information about these functions, please see the sections down below.



6.1. Module Information

lule Infor	mation							
Module Informat	ion ×							
Module Inf	ormation							
Slot No.	Module Name	Firmware Version	FPGA Version	PROM Version	Hardware Version	Lock Status	Serial Number	MAC Address
Slot 1	XM-2S10	v1.3b021	n/a	v1.6b011	n/a	n/a	n/a	n/a
Slot 2	n/a							
Slot 3	XM-RM78EP	v1.9b019	v4.1b003	v1.6b014	MP01	Unlock	0JNSRM781001	00-22-A2-06-81-B0
Slot 4	n/a							
Slot 5	n/a							
Slot 6	XM-RM681	v1.9b018	v4.0b012	v1.6b011	MP07	Unlock	0LRM68300113	00-22-A2-12-86-30
Slot 7	n/a							
Slot 8	XM-RM751	v1.9b020	v4.1b003	v1.6b011	MP07	Lock	0MRM75349213	00-22-A2-13-81-F8
Chassis ID : 240	XM-600i Backbone	n/a	v0.9b002	n/a	MP04	n/a	12353245	n/a

If you click **Module Information** from the **Function View**, the **Main Display Pane** will display **Module Information** as shown in the picture above.

The following information can be viewed on **Module Information**:

- > Slot No.: This field displays the slot number of the module card.
- > Module Name: This field displays the module name of the module card.
- > **Firmware Version:** This field displays module card's firmware version.
- > **FPGA Version:** This field displays module card's FPGA version.
- PROM Version: This field displays module card's PROM version
- > Hardware Version: This field displays module card's hardware version.
- Lock Status: This field display module card's current status. If a port has been reserved for tests, the Lock Status field will show Lock. If a port is not selected and reserved for tests, the Lock Status field will show Unlock.
- > Serial Number: This field displays the serial number of the device.
- > MAC Address: This field displays the mac address of the module card.



6.2. Reserved Ports

All reserved ports that you've reserved for tests will be listed here as shown in the picture right. For detailed information about how to reserve/release ports, please refer to **7. Reserve/Release Module**.

Function View P ×	Module	Information	1 (240,	, 8, 1) - XM-R	M751 Str	ream Generation	×							
d' d'	(240,	8,1)-	XM-R	M751 S	tream	Generatio	on							
	i 😅 🔒	🗟 📴 🖓	Ø 🗗	*										
🖨 🌐 Chassis ID : 240														
- 1 Module Information	TX Rate	Control Aut	to General	te TX Kate	• Stre	eams Loop Time(5)[1	Stream Trans	mit Mode Continue	ous 👻				
Reserved Ports	Total Lin	e Rate(Mbp	s) 1000.0	0 🗎 T	otal Utiliz	ration(%) 100.00	00 🕀 Total	Packet Rate(PPS	5) 1488095					
📮 🔚 (240, 8, 1) - XM-RM751			-/						·	1				
Stream Generation		Stream #	Select	Length (w/	o CRC)	Frame Payload		Rate		Tx	Frame/Gap Contr	ol	X-1	AG
Red Configuration		Stream #	Jeicer	Control	Step	Traine Tuyloud	Line Rate(Mbps)	Utilization(%)	Packet Rate(PPS)	IFG (bit time)	IBG (bit time)	Frames	Enable	X-ID
Conture Oritoria		1	1	60	2	All 0	1000.00	100.000	1488095	96	256	1488095		0
ADD & NDD Configuration		_												
Ptroom Counter Potting														
(240 8 2)- YM-RM751														
(240 8 3) - XM-RM751														
(240 8 4) - XM-RM751														
🗰 🏟 Browse Setup														
Browse Setup Group Setup														
Browse Setup Setup Setup Main Counter														
a 🛞 Browse Setup 														
Group Setup Group Setup Group Setup Main Counter Main Counter Chart To Xtraam Counter														
Browse Setup Stop Around Counter Main Counter Tar Xstream Counter R Rx Stream Counter														
Browse Setup Strouge Setup Browse Setup Main Counter Main Counter Chart Tx Stream Counter R: Stream Counter Stream Counter Stream Counter														
OF Browse Setup Source Setup Main Counter Main Counter Chart To Stream Counter RE RK Stream Counter Stream Counter Stream Counter Stream Counter Stream Counter														
Proves Setup Sorves Setup Sorves Setup Proves Setup Sorves Stream Counter Stream Counter Stream Counter Summary Sorves Counter Summary OUT Clock Measurement														
Proves Setup Stronge Setup Main Counter Main Counter Chart To Stream Counter RE KS Stream Counter Stream Counter Capture Buffer Capture Buffer DUT Clock Measurement Capture Dut														

The reserved ports will be listed here in a format of (X, Y, Z): XM-RMxxx. Click the button before each port to expand the sub-menu.





6.2.1. Stream Generation

The **Stream Generation** allows you to add multiple streams for the specific reserved port and editing contents of these streams.

	Α —	(240, 8, 1) - XM-RM751 Strea	m Generation
	в		
	c —	Tx Rate Control Auto Generate Tx Rate	Stream FLoop Time(s) V Stream Transmit Mode Continuous V
		Length (w/o CR	C) Rate Tx Frame/Gap Control X-TAG
	D —	Stream # Select Control St	Frame Payload Line Rate(Mbps) Utilization(%) Packet Rate(PPS) IFG (bit time) IBG (bit time) Frames Enable X-ID
		1 60 2	All 0 1000.00 100.000 1488095 96 255 1488095 0
			W
		00 01 02 03 04 05 06 07 08 09	OA OB OC OD OE OF
	Е ——	00000000 FF FF FF FF FF FF 00 22 A2 F0 00000010 00 2E 00 00 00 00 40 FF EF 7E 00000020 01 01 00 00 00 00 00 00 00 00	08 01 08 00 45 00 ∰ÿÿÿÿÿ,"¢äE. : C0 A8 08 01 C0 A8@ÿI∞Å"Å" : 00 00 00 00 00 00
		00000030 00 00 00 00 00 00 00 00 00 00	00 00
4			intiona
T	eam	Generation Descr	iptions
4		Port Number	This field displays the ID of the reserved port you're setting.
,	~	antral Duttana	These buttons allow you to save the current settings, load
5	С С	ontrol Buttons	previously saved settings and apply the settings
			This coroll down monu allows you to not the stream
)	Тх	Control Settings	
			transmitting rate.
)	S	tream Settings	You can set the stream transmitting mode here.
-	Р	acket Content	This field displays the contents of the stream you've selected.

Please see the sections down below for detail information regarding to **Stream Generation**.

07



6.2.1.1. Control Buttons



Control But	tons Descriptions	
Ĩ	Load previously saved settings. Please no format.	te that the settings you load should be in "* .sgx "
	Save the current settings to "*.sgx" forma	t files.
R	Load the default stream generation setting	JS.
B	Add Stream.	
	Delete Steam.	
Ø	Column View Setting Image: Select Image: Select	Set the items you want to configure for each stream. The selected items here will be listed as a configurable column in Section B .
-	Length Step Setting Length Steps Step 1 60 v Step 2 124 v Step 3 508 v Step 4 1020 v Step 8 1020	 After pressing the Length Step button, a Length Step Setting window will pop up, showing the frame lengths of different steps. You can set the frame length for each step here. Press OK to save all the changes you've made and exit or press Cancel to directly exit.
*	Apply the current settings.	

mus

Test Instruments and Networks



6.2.1.2. Tx Rate Settings

Tx Rate Control Auto Generate T	x Rate 🔻 Streams Loop Time(s)	□ 1 Stream Transmit Mode Continuous
Total Line Rate(Mbps) 1000.00	Total Utilization(%) 100.000) Total Packet Rate(PPS) 1488095

Tx Rate Control: set the Tx rate control mode of each stream.



	When the Rate , yo system v	e Tx R u can i vill auto	ate C nput I omatio	ontrol is Line Rat cally cale	s set f te of e culate	to Auto every st e IFG ar	Generat tream mar nd IBG.	e d Tx nually. The
Auto Generated Tx Rate	C1 1 1	Select	Leng	th (w/o CRC))	Frame	Rate	T
	Stream #	Stream	Con	trol Ste	p F	Payload	Line Rate 🔻	IFG (bit time
	1	V	6) n/a		8'0 8'1	300.00	96
	2	V	6) n/a		All 0	400.00	96
	3	V	6) n/a		All 0	300.00	96
Manual Input Rate	can inpu will autor	t the IF natical	G, IB	G and o culate th	ther in the	tems m te.	anually. T	he system
				LI DE C			Tv	Eramo/Can Cont
	Frame Paylo	ad ine Rat	e(Mbps)	Rate) Packe	t Rate(PPS)	Tx IFG (bit time)	Frame/Gap Cont IBG (bit time)
	Frame Paylo	ad Line Rat	e (Mbps) /a	Nate Utilization(%) Packe	t Rate(PPS) n/a	Tx IFG (bit time) 96	Frame/Gap Con IBG (bit time) 96
	All 0	ad _ine Rat	e (Mbps) /a /a	Rate Utilization(% n/a n/a) Packe	t Rate(PPS) n/a n/a	IFG (bit time) 96 96	Frame/Gap Con IBG (bit time) 96 96


Stream Loop Time: set the time for all the streams of the port run a loop. The streams will be transmitted circularly.



Stream Transmit Mode: Set the packet transmitting mode of each stream.



Stream Transm	it Mode							
Continuous	NuWIN-RM will transmit streams continuously							
	When the Stream Transmit Mode is set to							
	Packet Limit, a Packets field will be	Packets 10)					
Packets Limit	lode sc	scroll-down menu.						
	t amounts o	of						
	packets are transmitted.							
	When the Stream Transmit Mode is set to							
	Time Mode, a Second field will be displayed	Second(s) 10	-				
Time Mode	right next to the Stream Transmit Mode							
	scroll-down menu. NuWIN-RM will stop transn	nitting pa	ackets when	n the				
	set amount of time is passed.	•						

- > Total Line Rate: The total Tx rate sum of all streams of the port.
- Stream Utilization: The ratio of the Total Line Rate to the wire rate.
- > Total Packet Rate: The packets number transmitted of all the streams of the port.



6.1.2.3. Stream Settings

		Colort	A	Null	Length (w/	Length (w/o CRC)			Rate		
	stream #	Select	Allas	Stream	Control	Step	ггате Рауюац	Line Rate(Mbps)	Utilization(%)	Packet Rate(PPS)	I
	1	1		n/a	60	2	All 0	10.00	10.00	14880	

The section lists the detailed settings of each stream. Also, you can add more streams and editing their contents here as well. About how to add a new stream, please see **6.1.2.4. Add Streams** for detailed information.

Stream Setting	S							
Select	Click the check box here to select the stream.							
Alias	You can name an alias for each stream by double click the alias column and input the alias.							
Null Stream	The null stream is a fake stream. This kind of stream will occupy the transmitting time but not really transmit any packet actually. You can only set the stream as a null Stream when the Tx Rate Control is set to Manual Input Rate .							
Length (w/o CRC)	 You can set how the values of packet lengths (without CRC) are changing here in this field. To set the changing mode of packet length, please double click on the column to access the scroll-down menu. The scroll-down menu contains the following modes: 60: set a fixed frame length of 60, or you can manually input a value in the above box. The range of the frame length is from 48 to 16300. Random: set the frame length to be random. Increase: the frame length will be in an increased mode. Decrease: the frame length will be in a decreased mode. Step: the frame length will be in a step mode. And you can select the step value from the scroll down menu by double clicking the step column. 							
Frame Payload	Click the Frame Payload scroll-down menu to set packet contents as All 0 , Increase , Random , Decrease , Word Increase , Word Decrease , 55AA , 5555AAAA , 8'0 8'1 , 16'0 16'1 , 32'0 32'1 , 64'0 64'1 , Random , and All 1 .							
Rate	 Random, Decrease, Word Increase, Word Decrease, 55AA, 5555AAAA, 8'0 8'1, 16'0 16'1, 32'0 32'1, 64'0 64'1, Random, and All 1. You can set the transmitting rate here in this field. There are three different modes available for setting transmitting rate: Packet Rate: This option will set the rate as PPS, amount of packets sent per second. Line Rate: This option will set the rate as the line rate (in Mbps). Utilization: This option will set the rate as utilization percentage (%). To access the transmitting rate setting mode menu, please click the ▼ icon as shown in the picture above. Also, please note that if you would like to set transmitting rate here 							
Tx Frame/Gap Control	The Tx Frame/Gap Control allows you to set the IFG (bit time) , IBG (bit time) , and Frames . Please note that if you would like to set Tx Frame/Gap Control here manually,							



Stream Settings you have to set Tx Rate Control to Manual Input Rate. The X-TAG field allows you to enable/disable the X-TAG that will be added into the frames. Click and check the "Add" check box to enable the X-TAG function, or uncheck the "Add" check box to disable this function. Also, to set the X-ID (X-TAG ID), please X-TAG check the "Add" check box, and input the XID manually in the X-ID field. The range of the XID is from 0 to 511. You can set if you would like to add CRC headers in your stream by check the check box. Append CRC The Error Generation allows you to insert frame errors to the stream. **No Error:** No error frames will be generated. No Error Ŧ Error > CRC Error: Streams with CRC Error will be generated. No Error Generation CRC Error > **IPCS Error:** Streams with IPCS Error will be generated. IPCS Error To access the scroll-down menu, please click the Error Generation field. If you press the **Frame Edit** button, a **Frame Data Edit** window will pop up, allowing you Frame Data to edit frames. For more detailed information, please refer to 9. Editing Protocol with Frame Data Edit window. Protocol Type This field displays the protocol you've set with Frame Data Edit window. The MAC field displays the DA (Destination MAC Address) and SA (Source MAC Address) of the reserved ports. If you would like to edit the destination/source MAC MAC addresses listed here, please double-click the DA and SA (Source MAC Address) of each stream. The VLAN field allows you to enable/disable the VLAN that will be added into the frames. Click and check the "Enable" check box to enable the VLAN function, or uncheck the VLAN "Enable" check box to disable this function. Also, to set the VID (VLAN ID), please input the VID manually in the VID field. The IP field displays the DIP (Destination IP Address) and SIP (Source IP Address) of the reserved ports. If you would like to add DIP and SIP to the frames, click and check the IPv4/IPv6 "Enable" check box. Please note IPv6 is available for part of the XM-RM modules, not all of them.



6.1.2.4. Adding New Streams

NuWIN-RM provides two ways for the user to add new streams:

1. Right-click on the far left blank column ahead of each steam and then select Add Steam.

Control Manual Input Rat	te 🔹	Streams Lo	op Time(s)		 Stream 1 	Transmit Mode	ontinuous 👻
ne Rate(Mbps) 100.00	Tota	al Utilization(%	6) 100.00	* *	Total Packet Rate	e(PPS) 148809	×
Sharen # Colort	A.I	Null	Length (w/	o CRC)	Company Produced		Rate
Stream # Select	Alids	Stream	Control	Step	ггаше Рауюац	Line Rate(Mbps)	Utilization(%)
1			60	2	All 0	n/a	n/a
Add Stream			60	2	All 0	n/a	n/a
Copy Selection Items Paste Duplicate							
Copy Selection Items Paste Duplicate Insert							
Copy Selection Items Paste Duplicate Insert Delete							
Copy Selection Items Paste Duplicate Insert Delete Delete Others							
Copy Selection Items Paste Duplicate Insert Delete Delete Others Enable Move							
Copy Selection Items Paste Duplicate Insert Delete Delete Others Enable Move Select All							

2. Click the Add Stream button.

Ping IPv6 Function Get DUT MAC Router N	AT (240, 6, 1) - XM-RM681 Stream Generation ×				
(240, 6, 1) - XM-RM681 Stream Generation					
i 🖆 🛃 🗟 💁 💷 🖬					
Tx Rate Control Manual Input Rate	treams Loop Time(s) 1				

Then the following window will pop up to allow you configure the detailed settings of the added streams.

umber of Streams 1 Range(1 ~ 61)	
MAC	
DA FF-FF-FF-FF-FF Fixed Step + 1	
Select Exchange Byte	
SA 00-22-Å2-00-07-01	×
Select Exchange Byte	
_	
TD4	
15.04	
Internet	
Internet DIP 192.168.1.1 Prove Step + - 1	A V
Internet DIP 192.168.1.1 Fixed Step + - 1 Select Exchange Byte	×
Internet DIP 192.168.1.1) Fixed Step + - 1 Select Exchange Byte	(Å) (¥) (Å) (¥)
Internet DIP 192.168.1.1 @ Fixed Step + - 1 Select Exchange Byte	X X
Internet DIP 192 . 168 . 1 . 1 @ Fixed Step 0 + 0 - 1 Select Exchange Byte :: XXX v SIP 192 . 168 . 7 . 1 @ Fixed Step 0 + 0 - 1 Select Exchange Byte :: XXX v v	A V



Adding Streams Settings	
Number of Streams 1 Range(1 ~ 61)	Please set the number of streams you would like add. You can add 61 more ports here.
MAC DA FF-FF-FF-FF-FF ● Fixed Step + ● 1 ▲ Select Exchange Byte ::-:-:-: × ▼ SA 00-22-A2-00-07-01 ● Fixed Step + ● 1 ▲ Select Exchange Byte ::-:-:-:-: Step + ● 1 ▲ Select Exchange Byte ::-:-: -:-:-: × ▼	You can input the DA (Destination MAC Address) and SA (Source MAC Address) here in the MAC field.
DA FF-FF-FF-FF-FF Fixed Step +	If you need your new streams have the same MAC address, please choose Fixed as shown in the picture on the left.
Step 🔿 + 💿 🗍 1	NuWIN-RM allows you to set new streams' MAC addresses in an increasing or decreasing manner. +: Set the MAC address values in an increasing manner. -: Set the MAC address values in a decreasing manner. Please set the value of the steps in the field on the right hand.
Select Exchange Byte::XX ::-:XX ::XX ::XX ::XX ::XX : XX: -::XX: : XX: XX:	Also, you can set which section you would like to change with the Select Exchange Byte scroll-down menu.
Internet DIP 192.168.1.1 Select Exchange Byte SIP 192.168.7.1 Step + - 1 Select Exchange Byte	If you would like to set the IPv4 addresses for your streams, please check the IPv4 check box. Setting DIP (Destination IP Address) and SIP (Source IP Address) for new streams are quite like setting MAC address and can be related. Please refer to step 4~7. Click OK to save all the settings you've made and exit, or Cancel to exit without
Stream # Select Length (w/o CRC) Frame Rate Tx Frame/Gap Control Stream Control Step Payload Line Rate • IFG (bit time) IBG (bit time) Frames	saving.
1 1/2 60 n/a 8'0 8'1 n/a 96 368 1 2 1/2 60 n/a All 0 n/a 96 368 1 3 1 60 n/a All 0 n/a 96 736 1 4 1/2 60 n/a All 0 n/a 96 384 1	on the Main Display.



6.2.2. Media Type Setup

· · · · · · · · · · · · · · · · · · ·
🖮 🔚 Reserved Ports
🚊 🖓 🏣 (0, 3, 2) - XM-RM751
Stream Generation
Media Type Setup
Port Configuration
Capture Criteria
ARP & NDP Configuration
Stream Counter Setting

When clicking **Media Type Setup**, the following window will pop up. The **Media Type Setup** window varies from different module cards you've reserved for the tests. Please refer to the sections down below for media type settings.

TER 1011 II.						
☑ 10M Half		Force 10M Half				
10M Full		Force 10M Full				
☑ 100M Half		Force 100M Half				
100M Full		Force 100M Full	Force 100M Full			
1000M Full		Force 1000M Full				
Link UP/Link Down	Cable MDI-II/MDI-X Mode	Master/Slave Mode				
Link Down	Auto MDIX	(@) Master				
Link Up	Force MDI-II	Slave				
	Earce MDLX					

- Auto Negotiation Mode: This function allows automatically negotiate the transmitting rate between the two communication ports. You can select the transmitting rate in the Auto Negotiation Mode area.
- Manual Speed Mode: This function allows you to manually set the transmitting rate. Force here means the transmitting rate of the port will switched to the selected mode even if the connection fails.
- Link Down: If this function is selected, this port will be closed and unable to use. All connections to this port will be cut off.
- Link Up: Select this function to enable this port. The connections to this port are available to be established.
- Auto-MDIX: MDIX is a technology that automatically detects the required cable connection type (straight-through or crossover) and configures the connection appropriately. Click the Auto-MDIX scroll-down menu to enable or disable this function.
- > Force MDI-II: force the port to be Force MDI-II type.
- > Force MDI-X: force the port to be Force MDI-X type.
- Copper/Fiber Mode: Only when the Manual Speed Mode is set to be Manual Speed Mode, this function is available. Please set the media type according to the practical type of the port. If the port is electrical, please select Copper Mode, and if the port is optical, please select Fiber Mode.
- Master/Slave Mode: Only when the Manual Speed Mode is set to be Manual Speed Mode, this function is available. The two ends of the connection will be set as Master or Slave. If both ends of the connection are set to the same, the link of that connection will be down. Please set the module card's port accordingly here, or choose Auto Detect so NuWIN-RM will detect and set the transmitting mode automatically.
- > Apply: Press this button to apply all the changes you've made and exit.
- > **Cancel:** Press this button to cancel all the changes you've made and exit.





6.2.3. Port Configuration



When clicking **Port Configuration**, a **Port (X, Y, Z): Port Configuration** window will pop up, where **(X, Y, Z)** is module card's port ID. You can make port configurations for the designated port here on the Port Configuration pop-up window.

The Port Configuration window contains 6 menu tabs: A. Flow Control, B. Random Packet Length, C. X-TAG Offset, D. BERT, E. Data Integrity (DI), and F. Elongated Frame Gap. Please see the sections down below for more detailed descriptions.

F	Flow Control	Random Packet	t Length	X-TAG Offset	BERT	Data Integrity (D	() Elongated Fr	ame Gap
	Tx Flow Con	itrol	Rx Flow	Control		Rx Rate Control		
	🔘 Enable	Oisable	🔘 Enab	le 💿 Disable		🔘 Enable 🛛 🔘 Disa	ble	
						Rate Limited: 100	0.00	Mbps

maximum receiving speed of the port in **Rate Limited**.

D .	Force All Streams to Random Length Dynamic Random Seed	Random Packet Length (w/o CRC)
	Enable Isable	Minimum: 60
		Maximum: 1514
	Force All Streams to Random Length: when this function in a random length between the Minimum value and the Length (w/o CRC).	on is enabled, all streams of the port will be Maximum value set in Random Packet
	Dynamic Random Seed: Enable this function, then the radifferent, or packet lengths of all streams may be the same	andom packet of different streams will be ne.

Random Packet Length (w/o CRC): Set the range of the random packet length.



C X-TAG Offect						
C. X-TAG Offset						
	Flow Control Random Packet Length X-1AG UTSET BERT Data Integrity (DI) Elongated Frame Gap					
	X-TAG Offset					
	Tx Offset: 49 Bytes					
	Check Offset: 49 Bytes 🔻					
X-TAG is a 12-byte tag developed by Xtramus, embedded in the transmitted packets, which is an enhance measure to check the validation of data transmission on the network. When the starting position of the X-TAG in the received packet by the other port of the two communication ends coincides with the Byte set in Check Offset , then the data transmission between the two communication ends is supposed to be validate. The Byte in Check Offset should be set based on the Byte in Tx Offset .						
Tx Offset: Set the	e starting position of the X-TAG in the transmitted packet from the scroll down					
menu.						
	Tx Offset: 49 Bytes					
	45 Bytes					
	Check Offset: 49 Bytes 65 Bytes					
> Check Offset: Set	t the starting position of the X-TAG in the received packet from the scroll down					
menu. Auto Chec	k means the system will automatically select the right Byte for this function.					
	Check Offset: 49 Bytes					
	Auto Check					
	45 Bytes					
	49 Bytes					
	57 Bytes					
	61 Bytes					
	69 Bytes					

D. BERT		
	Port Configuration	
	Port (0, 3, 4): Port Configuration	
	Flow Control Random Packet Length X-TAG Offset BERT Data Integrity (DI) Elongated Frame Gap	
	Transmit BERT Check BERT © Enable © Disable © Enable © Disable	
	BERT Illustration	
	BERT pattern Image: Construction of the stream score in the s	
	Note Changing settings here might cause Link Status changes and packet loss,	
	OK Cancel	
BERT stands for Bit Er ➤ Transmit BERT: A	ror Rate Test . dding BERT patterns to transmitted packets if this	is enabled.

Check BERT: NuWIN-RM will check if BERT patterns are in received packets.



E. Data Integrity (DI)	
Port Configuration	
Port (0, 2, 2): Port Configuration	
Flow Control Random Packet Length X-TAG Offset BERT Data Integrity (DI) Elongated Frame Gap	
Transnit DI Check Received DI	
2 nd level CRC	
DA SA DATA FCS	
2nd Level CRC, an advanced data integrity check function, is the checksum computed based on the contents of the frame from the offset through the end of the data field, inclusive. If data is corrupted by DLT and ECS is affected by	
the error data, 2nd level CRC check will serve as the checksum. Any mismatches of transmitted and received packets are recorded as error of 2nd Level CRC (Data Integrity) check.	
Note Changing settings here might cause Link Status changes and packet loss.	
OK Cancel	
Transmit DI: When enabled NuWIN-RM will check data integrity of transmitted page	ckets
Check Received DI: When enabled. NuWIN-RM will check data integrity of transmitted pace	ed packets.
Check Received DI: When enabled, NuWIN-RM will check data integrity of receive	ed packets.

F. Elongat	ed Frame (Gap			
	Flow Control	Random Packet Length	X-TAG Offset	BERT	Data Integrity (DI) Elongated Frame Gap
	Elongated F	rame Gap			
	Enable	Oisable			
When this	function is	enabled and the tra	nsmitting pa	cket fl	ow reaches wirespeed, a 1 byte-time of frame
gap will be	inserted af	ter a certain amour	nt of packets	are tr	ansmitted. This can reduce packet loss
Caused by	crystal freq	crystal frequency d	Detween Du lifferentials h	Ji and	test instrument. Enabling Elongated Frame
Cup can co	ompensate	orystar nequency o		Jy aroc	





6.2.4. Capture Criteria

-	
🚊 🕁 Reserve	d Ports
) 📃 (0 , 2	, 1) - XM-RM731
S	tream Generation
M	edia Type Setup
P	ort Configuration
C	apture Criteria
A	RP & NDP Configuration
S	tream Counter Setting

When clicking **Capture Criteria**, the following window will pop up, where **(X, Y, Z)** is the module card's port ID. You can set packet capturing criteria for the designated port here.

The Capture Criteria contains 3 menu tabs: A. Protocol, B. SDFR, and C. Result. Please see the

sections down below for details.

A Protocol					
	(0, 2, 1) - XM-RM731 Capture Co	iteria			
	(0, 2, 1) - XM - RM'	731 Capture Criteria			
	Protocol SDFR Result				
	Canture All Packets				
	MAC	Network	Protocol		
	Broadcast Multicast Unicast VLAN	Ethernet-II BPDU ARP None IPv4 IPv4 IPv4 with Extension Header IPv6 IPv4 Checksum Error	UDP FTP RTP		
	CRC Error Over Size Under 64 Bytes Pause Packet	PX ICMP IGMP SNAP	OSPF		
	X-TAG Packet Length Filter(with Filter Length(Bytes)	CRC)			
		Apply Cancel			
Protocol allows you to ➤ Capture All Pa If you uncheck the Cap ➤ X-TAG: check the ➤ Packet Length involves the CF greater than 52	e set the crite ackets: Click oture All Pac this option to a Filter: Cap RC field. For 2 bytes, you s	eria for packet capturing this check box to capt ckets option, you can so capture packets with ture the packets with th example, if you want the should make the follow	g. ure all packet set the specifi X-TAG. he specified le ne system ca ing setting	ts. c protocols c ength. The ca ptures the pa	or rules. alculation of the length ackets with a length
		Filter Length(Bytes) >	• 52	×	
You can make multiple satisfying all the rules.	capture rule	s at the same time. Th	en the syster	n will capture	e the packets



B. SDFR			
	(0, 2, 1) - XM-RM731 Capture Criteria		
	(0, 2, 1) - XM-RM731 Capture Crit	eria	
	Protocol SDFR Result	×	
		DA Single 00 - 00 - 00 - 00 - 00 - 00	
	VID	SA Single - 00 - 00 - 00 - 00 - 00 - 00	
		VID Single VID	
	V DPort		
	SPort		
	DA & SA & VID	SIP Single	
	DA & DIP	DPort Single 0	
	SA & DIP	SPort Single 🔻 0	
	SA & SIP		
	DIP & SIP	Glosson	
	DIP & SPort	DA: Destination MAC Address	
	SIP & DPort	SA: Source MAC Address	
	DIP & SIP & DPort	VID: VLAN ID DIP: Destination IP Address	
	DIP & SIP & SPort	SIP: Source IP Address	
	VID & DIP & SIP & DPort & SPort	DPort: Destination Port	
	DA & SA & DIP & SIP	SPort: Source Port	
		Annhy Cancel	
SDFR (Self-Discover F Ethernet easy and conv and Source IP Address	Filtering Rules) is a te renient. SDFR parame (SIP)	echnology that makes packet c eters include filter of Layer 3 De	apturing/filtering over estination IP Address (DIP)
Each filter is independen the check boxes on the	nt and can be activate left side.	ed in any combinations. You car	n choose the rules by clicking
You can set and input th Pair , and Range . The fe	e value of the rules o ollowing descriptions	n the right side. The value of th will use DA as example.	e rules can be set as Single ,
Single: A single	value will be used as	SDFR parameter.	
	DIP Single	• 0 . 0 . 0 . 1	
> Pair: Two value	s will be used as SDF	R parameters.	
DIP	Pair 🔻 0 . 0	. 0 . 1 or 0 . 0 . 0	. 1
Range: Values	within the range of the	e two values set here will be us	ed as SDFR parameters.
> DIP Range -	0.0.0.1	≤DIP ≤ 0 . 0 . 0 . 1	

C. Result	
	Protocol SDFR Result (Unicast + X-TAG) + (Packet Length > 52 Bytes) + (DA + SIP & DPort) + (DA : 00-00-00-00-00) + (SIP : 0.0.0.0 ~ 0.0.0.0) + (DPort : 0)
The Result page will display the settings yo	u've made in Protocol and SDFR pages.





6.2.5. ARP&NDP Configuration

	ARP&NDP Configuration – Assign MAC address and IP address pairs to one port
	ARP, namely address resolution protocol, is a TCP/IP protocol to obtain the MAC address based on the IP address. NDP, namely neighbor discovery protocol, is a replacement of ARP in IPv6. You can assign multiple MAC address and IP address pairs to one port. As long as the
	IP address in the ARP request fits one of the assigned pairs, the port will response the
	ARP request. To assign a specific MAC address and IP address pair to the port, check the
	corresponding line in the most left Enable column. For example, in the picture down
	Font (0, 5, 2): AKF & NDF Configuration Fnable MAC ARP (Address Resolution Protocol) ND ^
	Source Address table Source IIv's Address Gateway Netmass Inable Source IIv's Addres #1 0.0224A20.0350 V 152.168.3.25 192.168.3.250 24 0.0000:0000:0000:0000:0000:0000:0000 #2 0.0224A20.0350 V 152.168.3.25 192.168.3.250 24 0.0000:0000:0000:0000:0000:0000:0000:0
	#11 00-22-A2-00-03-0C ½ 192.168.3.22 192.168.3.250 24 0000:0000:0000:0000:0000 #12 00-22-A2-00-350 ½ 192.168.3.120 192.168.3.250 24 0000:0000:0000:0000:0000 #13 00-22-A2-00-350 ½ 192.168.3.120 24 0000:0000:0000:0000:0000 #14 00-22-A2-00-350 ½ 192.168.3.150 24 0000:0000:0000:0000:0000:0000 #14 00-22-A2-00-350 ½ 192.168.3.150 24 0000:0000:0000:0000:0000:0000 #14 00-22-A2-00-350 ½ 192.168.3.150 124 0000:0000:0000:0000:0000:0000:0000:00
	< H
	Meanwhile, you must enable the ARP or NDP according the type of the IP address (IPv4 or IPv6) by check the corresponding line in the ARP or NDP Enable column.
	Port (0, 3, 2): ARP & NDP Configuration
	Nddress Enable Source (Pod Address) Return (Network) Network #1 00-03-02 IV 192.168.3.2 192.168.3.250 24 00000:0000:0000:0000:0000:0000:0000:0
Configuration	#2 0043-03 W 192,168.3.3 192,168.3.20 24 000000000000000000000000000000000
	#5 0/04356 W 152,168.3.7 159,168.3.7 24 0/00000000000000000000000000000000000
	#9 00-03-0A ✓ 192.168.3.10 192.168.3.250 24 0000-0000:0000:0000:0000:0000:0000:000
	#12 00-3-00 V 192.168.3.13 192.168.3.250 24 000000000000000000000000000000000000
	#16 00-03-11 V 192.168.3.17 192.168.3.28 24 00000:0000:0000:0000:0000:0000:0000:
	Note: please check the ARP Enable column for IPv4 and check the NDP Enable
	column for IPv6. Or, the MAC address and IP address pair is not successfully assigned
	ARP&NDP Configuration – Buttons
	(0, 3, 2) ARP & NDP Configuration
	Port (0, 3, 2): ARP & NDP Configuration MAC ARP (Address Resolution Protocol) NC 4
	Enable Source Address Enable Source IPv6 Addres Source IPv6 Addres #1 00-22-A20-00-302 V 192.168.3.20 24 000000000000000000000000000000000000
	C 00-224-20-003-04 1/2 152, 163, 14 192, 168, 125 24 0000-0000-0000-0000-0000-0000-0000-0
	#9 00-22-A2-00-03-0A V 192.168.3.10 192.168.3.250 24 0000:0000:0000:0000:0000:0000 Invert #10 00-22-A2-00-03-04 V 192.168.3.20 24 0000:0000:0000:0000:0000:0000 Invert #11 00-22-A2-00-03-04 V 192.168.3.12 24 0000:0000:0000:0000:0000 Invert
	#12 00-22-A2-00-93-00 ☑ 192, 168, 3, 13 192, 168, 3, 250 24 0000-0000-0000-0000-0000-0000-0000-00
	#15 00-22-A2-00-03-10 V 192.188.3.250 24 000000000000000000000000000000000000
	OK Cancel
	> Enable: right-click the Enable area shown in the above leftpicture, a menu will pop
	up to facilitate the enabling operations, shown as the above right picture.
	 Disable: uncheck all the lines of the column.

t.	Test Instruments and Networks
	 Invert: If the line is checked, then uncheck it or reverse. OK: Press this button to apply all the changes you've made and exit. Cancel: Press this button to cancel all the changes you've made and exit.



6.2.6. Stream Counter Setting

This function allows the user to set the statistical rules for the stream counters.

Stream Counter Setting			
	Rule: to set the rule from the scroll	(0, 2, 2) - XM-RM731 Stream	Counter Setting
	down menu.	(0,2,2)-XM-RM731	Stream Counter Setting
	• Block Size: to set the range based on	Stream Counter Mode	
	the rule.	Rule	Base on DA 🔹
	Begin Stream Address: to set the beginning address based on the rule.	Block Size	1
Edit Rule		Begin Stream Address	XX - XX - 00 - 00 - 00 - 00
	Example:		
	Select the Rule as Base on DA, the	Apply	Cancel
	Block Size as 5, the Begin Stream		
	Address as XX-XX-00-00-00, then the p	ackets satisfying	g to be received by
	the port will the packets with DA from XX-X	X-00-00-00-00 t	0
	XX-XX-00-00-00-04.		





6.3. Browse Setup



This function allows the user to view and set the configurations of every stream and all ports.



6.3.1. Stream Generation

The Stream Generation allows you to view and set the settings for all ports and all streams at one page.

IXC	ontrol												
	Port	Tx Rate	e Control	Strea	ms Loop	Fime(s) Strea	am Transmit Mode	Tx Packe	ts Tx Tin	ne(s) To	tal Line Rate(Mbps	;) Total U	Jtil
1	(0,2,2)-XM-RM731	Auto Gene	erate Tx Ra	te	1		Continuous	1000	10		1000.00	1	100
2	(0,3,1)-XM-RM751	Auto Gene	erate Tx Ra	te	1		Continuous	1000	10		1000.00		
3	(0,3,2)-XM-RM751	Auto Gene	arate Tx Ra	te	1		Continuous	1000	10		1000.00		100
4	(0,3,3)-XM-RM751	Auto Gene	rate Tx Ra	te	1		Continuous	1000			1000.00		
5	(0,3,4)-XM-RM751	Auto Gene	rate Tx Ra	te	1		Continuous	1000			1000.00		
Strea	am Setting	Stroom #	Falact	Length (w	o CRC)	Frame Pauload		Rate		ъ	c Frame/Gap Conti	ol	T
Strea	am Setting Port	Stream #	Select	Length (w, Control	o CRC) Step	Frame Payload	Line Rate(Mbps)	Rate Utilization(%)	Packet Rate(PPS)	Ta IFG (bit time)	Frame/Gap Conti IBG (bit time)	ol Frames	
Strea	Port	Stream #	Select	Length (w, Control	o CRC) Step	Frame Payload	Line Rate(Mbps)	Rate Utilization(%)	Packet Rate(PPS)	Ta IFG (bit time)	Frame/Gap Contr IBG (bit time)	ol Frames	
Strea	Port (0, 2, 2) - XM-RM731 (0, 2, 2) - XM-RM731	Stream #	Select	Length (w, Control	o CRC) Step	Frame Payload	Line Rate(Mbps)	Rate Utilization(%)	Packet Rate(PPS)	To IFG (bit time) 96	r Frame/Gap Contr IBG (bit time) 256	ol Frames 1488095	
Strea	Port (0, 2, 2) - XM-RM731 (0, 2, 2) - XM-RM731 (0, 2, 2) - XM-RM751	Stream #	Select	Length (w, Control	o CRC) Step	Frame Payload	Line Rate(Mbps)	Rate Utilization(%)	Packet Rate(PPS)	Tን IFG (bit time) 96	K Frame/Gap Contr IBG (bit time) 256	rol Frames 1488095	
Strea	am Setting Port □ (0, 2, 2) - XM-RM731 (0, 2, 2) - XM-RM751 (0, 3, 1) - XM-RM751 (0, 3, 1) - XM-RM751	5tream #	Select	Length (w, Control 60 60	5 CRC) 5 tep 2	Frame Payload	Line Rate(Mbps)	Rate Utilization(%) 100.000	Packet Rate(PP5) 1488095 1488095	TFG (bit time) 96 96	Frame/Gap Cont IBG (bit time) 256 256	rol Frames 1488095 1488095	
Strei	am Setting Port □ (0, 2, 2) - XM-RM731 □ (0, 2, 2) - XM-RM731 □ (0, 3, 1) - XM-RM751 □ (0, 3, 1) - XM-RM751 □ (0, 3, 2) - XM-RM751	Stream #	Select	Length (w, Control 60	2 2	Frame Payload	Line Rate(Mbps)	Rate Utilization(%) 100.000 100.000	Packet Rate(PP5) 1488095 1488095	To IFG (bit time) 96 96	Frame/Gap Contr IBG (bit time) 256 256	rol Frames 1488095 1488095	
Strei	Port (0, 2, 2) - XM-RM731 (0, 2, 2) - XM-RM731 (0, 3, 1) - XM-RM751 (0, 3, 1) - XM-RM751 (0, 3, 2) - XM-RM751 (0, 3, 3) - XM-RM751 (0, 3, 3) - XM-RM751	Stream # 1 1	Select	Length (w, Control 60	2 2	Frame Payload All 0 All 0	Line Rate(Mbps) 1000.00 1000.00	Rate Utilization(%) 100.000 100.000	Packet Rate(PP5) 1488095 1488095	75 IFG (bit time) 96 96	Frame/Gap Contr IBG (bit time) 256 256	rol Frames 1488095	
Stre	Port (0, 2, 2) - XM-RM731 (0, 2, 2) - XM-RM731 (0, 3, 1) - XM-RM751 (0, 3, 1) - XM-RM751 (0, 3, 2) - XM-RM751 (0, 3, 3) - XM-RM751 (0, 3, 3) - XM-RM751	Stream #	Select	Length (w, Control 60 60	'o CRC) Step 2 2 2 2	Frame Payload	Line Rate(Mbps)	Rate Utilization(%) 100.000 100.000	Packet Rate(PP5) 1488095 1488095 1488095	1FG (bit time) 96 96 96	Erame/Gap Contr IBG (bit time) 256 256	rol Frames 1488095 1488095	
Stre	Port (0, 2, 2) - X04-RM731 (0, 2, 2) - X04-RM731 (0, 3, 1) - X04-RM751 (0, 3, 1) - X04-RM751 (0, 3, 2) - X04-RM751 (0, 3, 3) - X04-RM751	Stream # 1 1 1 1	Select	Length (w, Control 60 60	'o CRC) Step 2 2 2	Frame Payload	Line Rate(Mbps)	Rate Utilization(%) 100.000 100.000	Packet Rate(PP5) 1488095 1488095 1488095	IFG (bit time) 96 96 96	Contemporation of the second s	rol Frames 1488095 1488095 1488095	

Sti	Stream Generation Descriptions				
Α	Control Buttons	These buttons allow you to save the current settings, load previously saved settings and apply the settings.			
в	Tx Control	This section allows you to view and set the Transmitting settings for all the ports.			
С	Stream Setting	This section allows you to view and set the Transmitting settings for all the streams.			

Please see the sections down below for detail information regarding to Stream Generation.







Control But	tons Descriptions					
ď	Load previously saved settings. Please note that the settings you load should be in "*.sgx" format.					
	Save the current settings to "*.sgx" format f	ïles.				
	Load the default stream generation settings	й.				
B	Add Stream.					
	Delete Steam.					
Ø	Column View Setting Select Alas Useram Userate Error Generation Apply Cancel	Set the items you want to configure for each stream. The selected items here will be listed as a configurable column in Section B .				
2	Length Step Setting Length Steps Step 1 60 Step 2 124 Step 3 508 Step 4 1020 OK Cancel	 After pressing the Length Step button, a Length Step Setting window will pop up, showing the frame lengths of different steps. You can set the frame length for each step here. Press OK to save all the changes you've made and exit or press Cancel to directly exit. 				
	Apply the current settings.					





6.3.1.2. Tx Control

	Port	Tx Rate Control	Streams Loop Time(s)	Stream Transmit Mode	T
1	(0,2,1)-XM-RM731	Auto Generate Tx Rate 💌	1	Continuous	=
2	(0,2,2)-XM-RM731	Auto Generate Tx Rate	1	Continuous	
3	(0,3,1)-XM-RM751	Auto Generate Tx Rate	1	Continuous	
4	(0,3,2)-XM-RM751	Auto Generate Tx Rate	1	Continuous	-
•	· · ·				*

Some parameters in this table are configurable. You can double-click the cell where you want to configure and set another value.

> **Tx Rate Control**: set the Tx rate control mode of each stream.

Tx Rate Control	Auto Generate Tx Rate 🛛 🔻
	Auto Generate Tx Rate Manual Input Rate Capped Balance Tx Rate

When the Tx Rate Control is set to Auto Generated Tx Rate , you can input Line Rate of every stream manually. T system will automatically calculate IFG and IBG .							ed Tx ually. The	
Auto Generated Tx Rate	C Select Length (w/o CRC) Frame Rate T							T
	Stream #	Stream	Cont	rol Ste	p F	ayload	Line Rate 🔻	IFG (bit time
	1	V	60	n/a		8'0 8'1	300.00	96
	2	V	60	n/a		All 0	400.00	96
	3	V	60	n/a		All 0	300.00	96
Manual Input Rate	can input the IFG , IBG and other items manually. The system will automatically calculate the Rate .							
				Rate			TX	Frame/Gap Cont
	Frame Payloa	d _ine Rat	e(Mbps)	Rate Utilization(%) Packe	t Rate(PPS)	Tx F IFG (bit time)	Frame/Gap Cont IBG (bit time)
	Frame Payloa	d _ine Rat	e(Mbps) ′a	Rate Utilization(% n/a) Packe	t Rate(PPS) n/a	Tx F IFG (bit time) 96	Frame/Gap Con IBG (bit time) 96
	Frame Payloa All 0 All 0	d Line Rat	e(Mbps) ′a ′a	Rate Utilization(% n/a n/a) Packe	t Rate(PPS) n/a n/a	Tx F IFG (bit time) 96 96	Frame/Gap Con IBG (bit time) 96 96



Stream Loop Time: set the time for all the streams of the port run a loop. The streams will be transmitted circularly.



Stream Transmit Mode: Set the packet transmitting mode of each stream.



Stream Transmit Mode						
Continuous	NuWIN-RM will transmit streams continuously.					
	When the Stream Transmit Mode is set to					
	Packet Limit, a Packets field will be	ackets 10				
Packets Limit	nit displayed right next to the Stream Transmit Mode scroll-down mer					
	NuWIN-RM will stop transmitting packets when the set amounts of					
	packets are transmitted.					
	When the Stream Transmit Mode is set to					
	Time Mode, a Second field will be displayed	Second(s)	10			
Time Mode						
scroll-down menu. NuWIN-RM will stop transmitting packets w						
	set amount of time is passed.					

- > **Total Line Rate**: The total Tx rate sum of all streams of the port.
- Stream Utilization: The ratio of the Total Line Rate to the wire rate.
- > Total Packet Rate: The packets number transmitted of all the streams of the port.
- > Length Step: The port will transmit the packets in a step mode according to the steps you set up here.

Example:

Length Step(w/o CRC)								
Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	
60	124	252	508	764	1020	1276	1514	
60	124	252	508	764	1020	1276	1514	
60	124	252	508	764	1020	1276	1514	
60	124	252	508	764	1020	1276	1514	

The port will send the packets in a sequence of 60, 124, 252, 508, 764, 1020, 1276, 1514 bytes repeatedly.





6.3.1.3. Stream Setting

Stream Setting								
		<i></i>		Length (w/o CRC)				Rate
	Port	Stream #	Select	Control	Step	Frame Payload	Line Rate(Mbps)	Utilization
	🗏 (0, 2, 1) - XM-RM731							
	(0,2,1)-XM-RM731	1	V	60	2	All 0	1000.00	100.000
	🗏 (0, 2, 2) - XM-RM731							
	(0,2,2)-XM-RM731	1	V	60	2	All 0	1000.00	100.000
	🗏 (0, 3, 1) - XM-RM751							
	(0,3,1)-XM-RM751	1	V	60	2	All 0	1000.00	100.000
	🗏 (0, 3, 2) - XM-RM751							
	(0,3,2)-XM-RM751	1	V	60	2	All 0	1000.00	100.000
	🗏 (0, 3, 3) - XM-RM751							
	(0,3,3)-XM-RM751	1	V	60	2	All 0	1000.00	100.000

Some parameters in this table are configurable. You can double-click the cell where you want to configure and set another value.





6.3.2. Media Type Setup



This function allows you to set up the media type settings of all ports at one page.

Med	ia Type Setup I 💵 🕍			
	Port	Speed Mode	Auto Negotiation Mode	Manual
1	(0,2,1)-XM-RM731	Auto Negotiation Mode	10M Half, 10M Full, 100M Half, 100M Full, 1000M Full	Force
2	(0,2,2)-XM-RM731	Auto Negotiation Mode	10M Half, 10M Full, 100M Half, 100M Full, 1000M Full	Force
3	(0,3,1)-XM-RM751	Auto Negotiation Mode	10M Half, 10M Full, 100M Half, 100M Full, 1000M Full	Force
4	(0,3,2)-XM-RM751	Auto Negotiation Mode	10M Half, 10M Full, 100M Half, 100M Full, 1000M Full	Force
5	(0,3,3)-XM-RM751	Auto Negotiation Mode	1000M Full	Force

- Auto Negotiation Mode: This function allows automatically negotiate the transmitting rate between the two communication ports. You can select the transmitting rate in the Auto Negotiation Mode area.
- Manual Speed Mode: This function allows you to manually set the transmitting rate. Force here means the transmitting rate of the port will switched to the selected mode even if the connection fails.
- Link Down: If this function is selected, this port will be closed and unable to use. All connections to this port will be cut off.
- Link Up: Select this function to enable this port. The connections to this port are available to be established.
- Auto-MDIX: MDIX is a technology that automatically detects the required cable connection type (straight-through or crossover) and configures the connection appropriately. Click the Auto-MDIX scroll-down menu to enable or disable this function.
- > Force MDI-II: force the port to be Force MDI-II type.
- > Force MDI-X: force the port to be Force MDI-X type.
- Copper/Fiber Mode: Only when the Manual Speed Mode is set to be Manual Speed Mode, this function is available. Please set the media type according to the practical type of the port. If the port is electrical, please select Copper Mode, and if the port is optical, please select Fiber Mode.
- Master/Slave Mode: Only when the Manual Speed Mode is set to be Manual Speed Mode, this function is available. The two ends of the connection will be set as Master or Slave. If both ends of the connection are set to the same, the link of that connection will be down. Please set the module card's port accordingly here, or choose Auto Detect so NuWIN-RM will detect and set the transmitting mode automatically.





6.3.3. Port Configuration



This function allows you to set up the port configuration settings of all ports at one page.

Port	Configuration					
		Тх	Rx	Rx	Rate Control	
	Port	Flow Control	Flow Control	Enable	Rate Limited (Mbps)	Force All Streams
1	(0,2,1)-XM-RM731				1000.00	[
2	(0,2,2)-XM-RM731				1000.00	[
3	(0,3,1)-XM-RM751				1000.00	
4	(0,3,2)-XM-RM751				1000.00	
5	(0,3,3)-XM-RM751				1000.00	

A Flow Control

- Flow Control: This function is used to release the network congestion situations. Including Tx Flow Control and Rx Flow Control.
- Rx Rate Control: Enable this function to control the rate of receiving data. You can input the maximum receiving speed of the port in Rate Limited.

B. Random Packet Length

- Force All Streams to Random Length: when this function is enabled, all streams of the port will be in a random length between the Minimum value and the Maximum value set in Random Packet Length (w/o CRC).
- Dynamic Random Seed: Enable this function, then the random packet of different streams will be different, or packet lengths of all streams may be the same.
- Random Packet Length (w/o CRC): Set the range of the random packet length.

C. X-TAG Offset

X-TAG is a 12-byte tag developed by Xtramus, embedded in the transmitted packets, which is an enhance measure to check the validation of data transmission on the network. When the starting position of the X-TAG in the received packet by the other port of thetwo communication ends coincides with the **Byte** set in **Check Offset**, then the data transmission between the two communication ends is supposed to be validate. The **Byte** in **Check Offset** should be set based on the **Byte** in **Tx Offset**.

Tx Offset: Set the starting position of the X-TAG in the transmitted packet from the scroll down menu.

Tx Offset:	49 Bytes 🔹 🔻
Check Offset:	45 Bytes 49 Bytes 65 Bytes



Check Offset: Set the starting position of the X-TAG in the received packet from the scroll down menu. Auto Check means the system will automatically select the right Byte for this function.

Check Offset: 49 Bytes Auto Check 41 Bytes 45 Bytes 53 Bytes 53 Bytes 57 Bytes 61 Bytes 65 Bytes 69 Bytes

D. BERT

BERT stands for Bit Error Rate Test.

- > Transmit BERT: Adding BERT patterns to transmitted packets if this is enabled.
- > Check BERT: NuWIN-RM will check if BERT patterns are in received packets.

E. Data Integrity (DI)

- **Transmit DI:** When enabled, NuWIN-RM will check data integrity of transmitted packets.
- Check Received DI: When enabled, NuWIN-RM will check data integrity of received packets.

F. Elongated Frame Gap

When this function is enabled and the transmitting packet flow reaches wires peed, a 1 byte-time of frame gap will be inserted after a certain amount of packets are transmitted. This can reduce packet loss caused by crystal frequency differentials between DUT and test instrument. Enabling Elongated Frame Gap can compensate crystal frequency differentials by around 30 ppm as simulation.





6.3.4. Capture Criteria



This function allows you to set up the capture criteria of all ports at one page.

Capture Criteria							
	Port	Edit Criteria	Criteria Summary				
1	(0,2,1)-XM-RM731	Edit	(Capture All Packets)				
2	(0,2,2)-XM-RM731	Edit	(Capture All Packets)				
3	(0,3,1)-XM-RM751	Edit	(Capture All Packets)				
4	(0,3,2)-XM-RM751	Edit	(Capture All Packets)				
5	(0,3,3)-XM-RM751	Edit	(Capture All Packets)				

Click the Edit button, the Capture Criteria window will pop up. It contains 3 menu tabs: **A. Protocol**, **B. SDFR**, and **C. Result**. Please see the sections down below for details.

A Protocol					
	(0, 2, 1) - XM-RM731 Capture C	riteria			i
	(0,2,1) - XM-RM	731 Capture Criteria			
	Protocol SDFR Result	•			
	Capture All Packets				
	MAC	Network			
	Broadcast	Ethernet-II BPDU	TCP		
	Multicast	ARP None IPv4	UDP		
	Unicast	IPv4 IPv4 with Extension Header	FTP		
	VLAN	IPv6 IPv4 Checksum Error	RTP		
	CRC Error	IPX IPX	OSPF		
	Over Size	ICMP	RSVP		
	Under 64 Bytes	IGMP			
	Pause Packet	SNAP SNAP			
	X-TAG				
	Packet Length Filter(with	CRC)			
	Filter Length(Bytes)	= 🚽 52 🛕			
		Apply Cancel			
 Protocol allows you to s ➢ Capture All Pacl If you uncheck the Captu ➢ X-TAG: check thi ➢ Packet Length F involves the CRC greater than 52 b 	et the criter kets: Click f ure All Pack s option to c filter: Captu field. For e sytes, you sl	ia for packet capturing this check box to cap kets option, you can capture packets with ure the packets with the example, if you want the hould make the follow	g. ture all packet set the specific X-TAG. ne specified le he system cap ring setting	s. c protocols or ngth. The cal otures the pac	rules. culation of the length ckets with a length
		Filter Length(Bytes) >	▼ 52	*	
You can make multiple ca satisfying all the rules.	apture rules	at the same time. Th	en the system	n will capture	the packets



B. SDFR			
(0,	2, 1) - XM-RM731 Capture Criteria		
	0, 2, 1) - XM-RM731 Capture Crite	eria	
Pr	rotocol SDFR Result		
	DA A	DA Single V 00 - 00 - 00 - 00 - 00 - 00	
	✓ SA ✓ VID	SA Single T 00 - 00 - 00 - 00 - 00	
	DIP		
	V SIP V DPort	VID Single VID	
	SPort	DIP Single	
	DA & SA DA & SA & VID	SIP Single - 0 · 0 · 0	
	DA & DIP	DPort Single 🗸 0 🚔	
	DA & SIP E	SPort Single	
	SA & SIP		
	DIP & SIP DIP & DPort	Glassar	
	DIP & SPort	DA: Destination MAC Address	
	SIP & DPort SIP & SPort	SA: Source MAC Address	
	DIP & SIP & DPort	VID: VLAN ID DID: Destination IP Address	
	DIP & SIP & SPort DIP & SIP & DPort & SPort	SIP: Source IP Address	
	VID & DIP & SIP & DPort & SPort	DPort: Destination Port	
	DA & SA & DIP & SIP	SPort: Source Port	
		Apply Cancel	
SDFR (Self-Discover Fi Ethernet easy and conve and Source IP Address (\$	Itering Rules) is a ten nient. SDFR parame SIP)	echnology that makes packet eters include filter of Layer 3 [capturing/filtering over Destination IP Address (DIP)
Each filter is independent the check boxes on the le	and can be activate: sft side.	d in any combinations. You ca	an choose the rules by clicking
You can set and input the Pair , and Range . The fol	value of the rules or lowing descriptions v	n the right side. The value of t will use DA as example.	he rules can be set as Single ,
Single: A single v	value will be used as	SDFR parameter.	
	DIP Single	• 0.0.0.1	
Pair: Two values	will be used as SDF	R parameters.	
DIP	Pair 🔻 0 . 0 .	. 0 . 1 or 0 . 0 .	0.1
Range: Values w	ithin the range of the	e two values set here will be u	sed as SDFR parameters.
DIP Range 🔻	0.0.0.1	≤DIP ≤ 0 . 0 . 0 . 1	

C. Result					
	<pre>Protocol SDFR Result (Unicast + X-TAG) + (Packet Length > 52 Bytes) + (DA + SIP & DPort) + (DA : 00-00-00-00 0) + (SIP : 0.0.0.0 ~ 0.0.0.0) + (DPort : 0)</pre>				
The Result page will display the settings you	u've made in Protocol and SDFR pages.				





6.3.5. ARP&NDP Configuration

This function allows you to set up the ARP&NDP Configuration of all ports at one page.

	ARP&NDP Configuration – Assign MAC address and IP address pairs to one port						
	ARP, namely address resolution protocol, is a TCP/IP protocol to obtain the MAC address based on the IP address. NDP, namely neighbor discovery protocol, is a replacement of ARP in IPv6.						
	You can assign multiple MAC address and IP address pairs to one port. As long as the IP address in the ARP request fits one of the assigned pairs, the port will response the						
	ARP request.						
	corresponding line in the most left Enable column. For example, in the picture down						
	below, the MAC address and IP address pairs from line 4 to line 8 are selected.						
	Image: Port (0, 3, 2) : ARP & NDP Configuration						
	MAC ARP (Address Resolution Protocol) ND ^ Source Address Enable Source IPv4 Address Gateway Netmask Enable Source IPv6 Address						
	#1 00-22+20-03-52 V 192.168.3.250 24 0000:0000:0000:0000:0000 #2 00-22+20-03-503 V 192.168.3.350 24 0000:0000:0000:0000:0000:0000 #3 00-22+20-03-04 V 192.168.3.450 24 0000:0000:0000:0000:0000:0000						
	#4 W 00/22 A2 001303 W 192 188.3.50 24 000000000000000000000000000000000000						
	#7 W 00-22 A2-00-3548 W 192-188.3, 350 24 000000000000000000000000000000000000						
	#10 00/22 A2-003508 V 192 L863.312 192 L863.22 24 000000000000000000000000000000000000						
	#13 00/22/42/00/35/2 V 152.168.3.15 192.168.3.20 24 000000000000000000000000000000000000						
	(0) (0) (2) (
	Meanwhile, you must enable the ARP or NDP according the type of the IP address						
	(IPv4 or IPv6) by check the corresponding line in the ARP or NDP Enable column.						
	Port (0, 3, 2): ARP & NDP Configuration						
ARP&NDP	NC ARP (Address Resolution Protocol) IMDP (Neighbor Discol) Address Enable #1 Source IV+0 Address Source IV+0 Address #1 00-0-302 102 192.168.3.2 24 000000000000000000000000000000000000						
Configuration	#2 00-03-03 W 192.168.3.3 192.185.3.50 24 000000000000000000000000000000000000						
	#5 0/01-05 W 152, 168, 3, 5 152, 168, 3, 25 24 0/00000000000000000000000000000000000						
	#B 000000000000000000000000000000000000						
	#11 00430C W 132,1003,112 132,1003,123 24 000000000000000000000000000000000000						
	#15 00-03-10 IV 152,168.3,16 122,188.3,250 24 00000-0000-00000-0000-00000-0000-0000						
	Note: place check the APP Enchies column for IDv4 and check the NDP Enchies						
	column for IPv6. Or, the MAC address and IP address pair is not successfully assigned						
	to the port.						
	ARP&NDP Configuration – Buttons						
	Port (0, 3, 2) ABP & NDP Configuration Port (0, 3, 2) : ARP & NDP Configuration						
	Enable MAC ARP (Address Resolution Protocol) NC ^ Source Address Enable Source IPv4 Address Source IPv4 Address D D D D D						
	#4 W 00-22-A2-00-03-05 W 192,168.3.5 192,168.3.50 24 0000000000000000000000000000000000						
	#7 W 01-22-82-001-350 W 192,168.3.28 124 000000000000000000000000000000000000						
	#10 00/224200305 № 192.1863.321 29 000000000000000000000000000000000000						
	#13 00/22/42/00/35/t V 192.406.3.20 24 000000000000000000000000000000000000						
	Concel OV						
	Enable: right-click the Enable area shown in the above left picture, a menu will pop up to facilitate the onabling operations, shown as the above right picture.						
	 Enable: check all the lines of the column. 						





 Disable: uncheck all the lines of the column.
 Invert: If the line is checked, then uncheck it or reverse.
• OK: Press this button to apply all the changes you've made and exit.
Cancel: Press this button to cancel all the changes you've made and exit.



6.3.6. Stream Counter Setting

🛞 Browse Setup							
	Stream Generation						
	Media Type Setup						
	Port Configuration						
	Capture Criteria						
	ARP & NDP Configuration						
	Stream Counter Setting						

This function allows the user to set the statistical rules for all ports.

	Port	Rx Stream Counter Rule Summary	Edit Rule
1	(0,2,1)-XM-RM731	Base on X-TAG, XID #: 0 , offset: 49 Bytes	Edit
2	(0,2,2)-XM-RM731	Base on X-TAG, XID #: 0 , offset: 49 Bytes	Edit
3	(0,3,1)-XM-RM751	Base on X-TAG, XID #: 0 , offset: 49 Bytes	Edit
4	(0,3,2)-XM-RM751	Base on X-TAG, XID #: 0 , offset: 49 Bytes	Edit
5	(0,3,3) - XM-RM751	Base on X-TAG, XID #: 0 , offset: 49 Bytes	Edit

Click the **Edit** button, the **Stream Counter Setting** window will pop up. You can edit the statistical rules on this window.

Stream Counter Setting						
	Rule: to set the rule from the scroll	(0, 2, 2) - XM-RM731 Stream (Counter Setting			
	down menu.	(0, 2, 2) - XM-RM731 Stream Counter Setting				
	• Block Size: to set the range based on	Stream Counter Mode				
	the rule.	Rule	Base on DA 🔹			
	 Begin Stream Address: to set the beginning address based on the rule. 	Block Size	1			
Edit Rule		Begin Stream Address	XX - XX - 00 - 00 - 00 - 00			
	Example:					
	Select the Rule as Base on DA, the	Apply Cancel				
Address as XX-XX-00-00-00, then the packets satisfying to be						
	the port will the packets with DA from XX-XX-00-00-00 to					
	XX-XX-00-00-00-04.					



6.4. Group Setup



This function allows you to divide the test ports into groups. The ports in the same group can be operated and controlled as a whole during the test, like start, pause or end the test tasks of the ports together.

G	Group Setup 🔄 💵 👪					
	Port	Group 1	Group 2	Group 3	Group 4	Group 5
	1 (0,2,1)-XM-RM731	0	0	0	O	Θ
	2 (0, 2, 2) - XM-RM731	0	0	0	O	Θ
	3 (0,3,1)-XM-RM751	0	0	0	O	Θ
	4 (0,3,2)-XM-RM751	0	0	0	O	Θ
	5 (0, 3, 3) - XM-RM751	0	0	0	O	Θ



6.5. Main Counter



The **Main Counter** window allows you to start/stop transmitting/capturing packets. A **Main Counter** window will pop up as shown in the picture below.

	A1 - P	σπ					
	А	В	c	D	E	All Linke	ed Ports
1	Port	(0,2,1)	(0,2,2)	(0,3,1)	(0,3,2)	Transmit	
2	Module	XM-RM731	XM-RM731	XM-RM751	XM-RM751	Conturo	
3	Tx Control					Capture	
4	Capture					Group	
5	····· Link	Link Up	Link Up	Link Up	Link Up	Transmit	
6	Speed	Auto 1000M Full	Auto 1000M Full	Auto 1000M Full	Auto 1000M Fr	Canture	
7	Group	n/a	n/a	n/a	n/a	Captare	
8	Tx Packet	0	0	0		😣 Group	6
9	Tx Byte	0	0	0		Transmit	
10	Tx Packet Rate	0	0	0		Capture	
11	Tx Line Rate (Mbps)	0.00	0.00	0.00			
12	Tx Utilization(%)	0.00	0.00	0.00		🕄 Group	1
13	Rx Packet	0	0	0		Transmit	
14	Rx Byte	0	0	0		Capture	
15	Rx Packet Rate	0	0	0		<u> </u>	
16	Rx Line Rate (Mbps)	0.00	0.00	0.00		C Group	
17	Rx Utilization(%)	0.00	0.00	0.00		Transmit	
18	⊕ Collision(Sum)	0	0	0		Capture	
23	Error & Loss Packet(Sum)	0	0	0			
30	Packet Size Statistics(Sum)	0	0	0		Group	
39	⊕ — Layer2 Packet Counts(Sum)	0	0	0		Transmit	
45	Network Layer(Sum)	0	0	0		Capture	

Ма	Main Counter Descriptions					
A	Control Buttons	These buttons allow you to save the counter report, clear all statistics, hide/show counter information, resize the Main Counter Window, and export the current counter to Microsoft Excel.				
в	Main Display Pane	You can view counter statistics or start/stop transmitting /capturing packets here in this section.				
С	Group Control Buttons	These buttons allow you to start/stop transmitting/capturing packets in groups.				

Please see the following sections for detail descriptions.





6.5.1. Control Buttons

📙 000 💵 🕮 ᄎ 🗢 🖽 🗷 📲 🛏 🗕

Please refer to the section down below for more detail descriptions regarding to the following contents.

Control Butt	ons Descriptions
	The Save button allows you to save the current counter reports to Microsoft Excel® format files.
000	The Clear button allows you to clear all statistics displayed on the Main Display Pane.
ų	The Port Map button allows you set the ports the statistics of which you want to view. Only the statistics of the selected ports will be displayed in the Main Display Pane .
	The Reset Port Map button allows you to clear all the ports you selected in the Port Map .
¥()*	The Hide button allows you to hide some of the TX/Rx statistics, as well as fold all tree style tab statistics on the Main Display Pane .
() ₽	The Show button allows you to show all TX/Rx statistics, as well as unfold all tree style tab statistics on the Main Display Pane .
•••	The Resize button allows you to set the width of Main Counter window. The maximum/ minimum value for the Main Counter window width is from 80 to 300 .
Ø	The View button allows you to set the detailed terms that will be displayed on the Main Display Pane . Click the View button and then a three style list will pop up. You can select the terms you want to display from the list.
⊲2	Learning packets will transmit to all the ports.
<u>↓</u>	Go to the first column.
↑	Go the last column.



6.5.2. Main Display Pane

	Α	В	C	D	E	F	G	
1	Port	(0,2,1)	(0,2,2)	(0,3,1)	(0,3,2)	(0,3,3)	Total:5 Ports	
2	Module	XM-RM731	XM-RM731	XM-RM751	XM-RM751	XM-RM751	-	
3	Tx Control						-	
4	Capture						-	
5	Link	Link Up	-					
6	Speed	Auto 1000M Full	-					
7	Group	n/a	n/a	n/a	n/a	n/a	-	
8	Tx Packet	0	0	0	0	0	0	
9	Tx Byte	0	0	0	0	0	0	
10	Tx Packet Rate	0	0	0	0	0	0	
11	Tx Line Rate (Mbps)	0.00	0.00	0.00	0.00	0.00	0.00	
12	Tx Utilization(%)	0.00	0.00	0.00	0.00	0.00	0.00	
13	Rx Packet	0	0	0	0	0	0	
14	Rx Byte	0	0	0	0	0	0	
15	Rx Packet Rate	0	0	0	0	0	0	
16	Rx Line Rate (Mbps)	0.00	0.00	0.00	0.00	0.00	0.00	
17	····· Rx Utilization(%)	0.00	0.00	0.00	0.00	0.00	0.00	
18	⊞ Collision(Sum)	0	0	0	0	0	0	
23	Error & Loss Packet(Sum)	0	0	0	0	0	0	
30	Packet Size Statistics(Sum)	0	0	0	0	0	0	
39	Layer2 Packet Counts(Sum)	0	0	0	0	0	0	
45	Network Layer(Sum)	0	0	0	0	0	0	
57	SDFR (Self Discover Filtering Rules)(Sum)	0	0	0	0	0	0	
65	····· X-TAG	0	0	0	0	0	0	
66	Tx Start Time	-	-	-	-	-		
67	Tx End Time	-	-	-	-	-	-	
68	Tx Duration	-	-	-	-	-	-	
69	First Error Time	-	-	-	-	-	-	
70	Last Error Time	-	-	-	-	-	-	
71								

Main Display Pane Descriptions

The **Main Display Pane** displays counter report statistics of all ports you've selected for test. Also, you can start/stop capturing packets or start/stop transmitting packets by the control buttons in this field.

- Stop: To stop capturing test packets or transmitting packets, press button. If the designated port is not capturing packets or transmitting packets, the button will be instead.
- Start: To start capturing test packets or transmitting packets, press button. If the designated port is capturing packets or transmitting packets, the button will be instead.



6.5.3. Group Control Buttons

All Linked Ports		
Transmit 🔲 🕨 💷		
Capture 📕 Þ		
1 Group		
Transmit 📕 ⊵ 💷		
Capture 📕 📐		
🕗 Group		
Transmit 📕 ⊵ 🕕		
Capture 📕 ⊳		

Group Control Buttons Descriptions

The **Group Control Buttons** allow you to start/stop capturing packets or start/stop transmitting packets in groups. You can assign a group ID number to reserved ports for test managements.

- Stop: To stop capturing test packets or transmitting packets, press button. If the designated group is not capturing packets or transmitting packets, the button will be instead.
- ➤ Start: To start capturing test packets or transmitting packets, press ▶ button. If the designated group is capturing packets or transmitting packets, the button will be ▶ instead.



6.6. Main Counter Chart

This function allows you to intuitively view the general trend of the TX/Rx line rate of the reserved port, shown as the picture down below. The x-axis stands for the Elapsed Time (seconds) while y-axis stands for the Rate (Mbps).



Control But	Control Buttons					
	Save the current chart in ".bmp" format.					
000	Clear the chart.					
	Start to plot the chart.					
	Stop to plot the chart					
N.	Port Map X Unselected Module (Chassis, Board, Port) Selected Module (Chassis, Board, Port) (0, 2, 1) - XM-RM731 (0, 2, 2) - XM-RM731 (0, 3, 1) - XM-RM751 (0, 3, 2) - XM-RM751 >> < < < < < < < < < < < < < < < < < < < < <	Select the ports. Only the Tx/Rx curve of the selected ports could be plotted in the coordinate.				
	Reset the Port Map setting.					



Control Buttons						
4	Scale Setting X Axis Scale Auto Fix Minimum: Naximum: 600 Sec. Maximum: Apply Cancel	0 1 Mbps 1200 1 Mbps	 The window on the right will pop up after click this button. You can set the X/Y Axis Scale on this window. Auto: the system will set an X/Y Axis Scale automatically. Fix: You can input the range of the X/Y Axis Scale manually. Minimum: the lower boundary of the X/Y Axis Scale. Maximum: the upper boundary of the X/Y Axis Scale. 			
	Select Port 1 Image: Constraint of the second sec	Line NameColorTx Line RateRx Line RateTx Line RateRx Line RateTx Line RateRx Line RateTx Line RateTx Line RateTx Line RateRx Line Rate	 This function is used to configure the colors of the plotted lines. ➤ Select: check the box to select the lines. Every port has two lines, the Tx Line Rate and the Rx Line Rate. Only the selected lines can be plotted. ➤ Color: double click the color block of a line to change the color. 			



6.7. Stream Counter

You can view the packet transmission and receiving statistics and edit the packet receiving rules here.

This function contains three sub-functions for **Stream Counter**, which are **Tx Stream Counter**, **Rx Stream Counter** and **Stream Counter Summary**.




6.7.1.Tx Stream Counter

Click **Tx Stream Counter** on the **Function View**, the **Tx Stream Counter** window will pop up to allow you to view the data transmission items of your interest.

) - XM-RM/31 (0, 2, 2) - XM-RM731				
000	A1	- Strea	am #			
	А	В	С	D	E	
1	Stream #	Packets	Bytes	X-ID		
2	1	75,892,845	4,857,142,080	-		
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
10						
19						
10						



Tx Stream Counter						
	000	Clear Tx Stream Counter of all ports.				
	ų	The Port Map button allows you set the ports the statistics of which you want to view. Only the statistics of the selected ports will be displayed in the Main Display Pane .				
А	L ®	The Reset Port Map button allows you to clear all the ports you selected in the Port Map .				
	•	Start Tx Stream Counter of all ports.				
		Stop Tx Stream Counter of all ports.				
В	B Click each tab, then the corresponding transmission data of the port will be displayed.					
		Save Tx Stream Counter of the current port to Microsoft Excel® format files.				
	000	Clear Tx Stream Counter of the current port.				
	•	Start Tx Stream Counter of the current port.				
^		Stop Tx Stream Counter of the current port.				
C	*()*	Hide the zero-value rows in the table.				
	() >	Expand the hide rows in the table.				
	æ	A Column View Setting window will pop up if you press this button. Check the items you want to view here, then the data information of the item will be displayed in D .				
D	The dyn form.	amic statistics of the selected items will be displayed here in a table				



6.7.2. Rx Stream Counter

Click **Rx Stream Counter** on the **Function View**, the **Rx Stream Counter** window will pop up to allow you to view the data receiving items of your interest.

	Rx S	Rx Stream Counter						
A	000	2000 KUE KES > 🔳						
в ———	(0,2,1)-XM-RM731 (0,2,2)-XM-RM731							
c		1 🛃 000 嬲 ▷ 🔳 🍝 🜩 😰 🚱						
		A1	= XID # (offs	set: 49 Bytes)			1	
		А	В	С	D	E	۰,	
D	1	XID # (offset: 49 Bytes)	Line Rate(Mbps)	Packets	Bytes	Loss Event		
	3	0	1.00	428,544	3,963,174,912			
	4							
	5							



Rx Stream Counter							
	000	Clear Rx Stream Counter of all ports.					
	W	The Port Map button allows you set the ports the statistics of which you want to view. Only the statistics of the selected ports will be displayed in the Main Display Pane .					
Α		The Reset Port Map button allows you to clear all the ports you selected in the Port Map .					
	•	Start Rx Stream Counter of all ports.					
		Stop Rx Stream Counter of all ports.					
В	Click ea displaye	ch tab, then the corresponding transmission data of the port will be d.					
		Save the Rx Stream Counter data of the current port to Microsoft Excel® format files.					
	000	Clear Rx Stream Counter of the current port.					
	000 MIN	Clear maximum and minimum latency.					
		Start Rx Stream Counter of the current port.					
		Stop Rx Stream Counter of the current port.					
С	¥()4	Hide the zero-value rows in the table.					
	4() ►	Expand the hide rows in the table.					
	Ø	A Column View Setting window will pop up if you press this button. Check the items you want to view here, then the data information of the item will be displayed in D .					
	3	Please see 6.2.6 Stream Counter Setting for detailed information.					
D	The dyn form.	amic statistics of the selected items will be displayed here in a table					





6.7.3. Stream Counter Summary

Click **Stream Counter Summary** on the **Function View**, the **Stream Counter Summary** window will pop up to allow you to view the data receiving items of your interest.

A	Stream Counter Summary Image:								
		A	В	с	D	E	F	G	н
	1 2	Port	Condition	Tx Packets	Tx Bytes	Rx Line Rate(Mbps)	Rx Packets	Rx Bytes	Broadca
В	3	(0,2,1)-XM-RM731	Tx Stream # : 1	3,687,499,410	235,999,962,240	-	-	-	
	4	(0,2,1)-XM-RM731	Rx XID # (offset: 49 Bytes): 0	-	-	1.00	3,687,264	292,503,278,592	
	5	(0,2,2)-XM-RM731	Tx Stream # : 1	3,687,499,410	235,999,962,240	-	-	-	
	6	(0,2,2)-XM-RM731	Rx XID # (offset: 49 Bytes): 0	-	-	1.00	3,687,264	292,503,278,592	
	7								

You can make stream counter settings here. Module card IDs are listed on the left part of the **SC Summary** tab page and are showed as the format of **(X, Y, Z)**, while X is the number of the chassis (which is displayed on NuSteams chassis), Y is the slot number where this module card is installed, and Z is the available port number located on the module card.



Stream Counter Summar	у						
		Save the counter data to Microsoft Excel® format files.					
	000	Clear all the counter data.					
	000 MIN	Clear maximum and minimum latency.					
		Start Tx&Rx Stream Counter.					
		Stop Tx&Rx Stream Counter.					
	U.	The Port Map button allows you set the ports the statistics of which you want to view. Only the statistics of the selected ports will be displayed in the Main Display Pane .					
		The Reset Port Map button allows you to clear all the ports you selected in the Port Map .					
Α	>() ∢	Hide the zero-value rows in the table.					
	()₽	Expand the hide rows in the table.					
		A Row View Setting window will pop up if you press this button. Check the items you want to view here, then the checked item will be listed as a row in B . Tx Stream Condition $\mathbb{Rx Stream Condition}$ $\mathbb{Rx Stream Condition}$					
	Ø	A Column View Setting window will pop up if you press this button. Check the items you want to view here, then the checked item will be listed as a column in B .					
	∎ t	Sort the ports in a ascend trend according to the port ID and Stream ID. This helps the user quickly set the ports in order when the port sequence is messed manually.					
В	The dyn form.	amic statistics of the selected items will be displayed here in a table					



6.8. Capture Buffer

This function allows the user to capture the packets according to the set rules or protocols, as well as parse the protocols and payloads of the captured packets.

240, 🚽 00	6, 1) - XM-RM681 0 🕨 🗆 🛃	(240, 6, 2) - XM-RM	681		
apture	ed:4		1		
	Delta Time(us)	Length(with CRC)	DA	SA	VLAN
1	0	64	FF-FF-FF-FF-FF	00-22-A2-F0-06-02	n/a
2	6.72	64	FF-FF-FF-FF-FF	00-22-A2-F0-06-02	n/a
3	6.72	64	FF-FF-FF-FF-FF	00-22-A2-F0-06-02	n/a
4	6.72	64	FF-FF-FF-FF-FF	00-22-A2-F0-06-02	n/a
_					
₽ Eth MD Fibr Fibr [Ma	m ernet II, Src: 00:2 S Header(Unknown 'e Channel Iformed Packet: F(2:a2:f0:06:02 (00:22:a) (0)/Unknown(11)) :]	2:f0:06:02), Dst: ff:ff:f	f:ff:ff:ff (ff:ff:ff:ff:ff:ff:ff	



Capture Buffer		
	000	Clear the captured packets of all ports.
	ų	The Port Map button allows you set the ports from which the packets are captured.
Α		The Reset Port Map button allows you to clear all the ports you selected in the Port Map .
	•	Start the capture of all ports you selected in Port Map .
		Stop the capture of all ports you selected in Port Map .
В	Click ea displaye	ch tab, then the corresponding capture data of the port will be ed.
		Save the capture data of the current port to Microsoft Excel® format files.
	000	Clear the capture data of the current port.
С		Start the capture of the current port.
		Stop the capture of the current port.
	3	Edit capture criteria. Please see 6.2.4 Capture Criteria for detailed information.
D	This are informative refers to capture	a lists the captured packets in sequence and displays the detailed tion, including the Delta Time , Length , DA , SA and VLAN . Delta Time the elapsed time between the previously captured packet and the next d packet.
E	Protoco	l analysis of the packet.
F	Content	s of the packet.



6.9. DUT Clock Measurement

The **DUT Clock Measurement** function tests the crystal oscillator's frequency of the DUT and checks if it's either faster or slower than standard speed in ppm scale.

A **DUT Clock Measurement** window will pop up, as shown in the picture down below.

The port you've selected will be displayed on the Main Display Pane located on the right side of the **DUT Clock Measurement** window, as shown in the picture down below.



There are two tab-menus available for you on the **DUT Clock Measurement** window, including **Report**, and **(X, Y, Z)**. Please see the sections down below for more details.





6.9.1. Report

Report								
	Report (0, 7, 1)							
		Current Value Maximum Valu						
		MHz	ppm	Time	MHz	ppm		
	(0,7,1)-XM-RM781	25.000007	0.28	11:52:43	25.000009	0.36		
This ≻	 This tab page displays the test result of clock statistics. Current Value: the current clock information. The MHz, ppm and Time here respectively mean the current oscillating frequency, current oscillating frequency deviation and the current time. 							
	the maximum excillating	froguopov			ppin and m	ine nere re	spectively mean	
	the maximum oscillating	riequency, n	naximum o	scillating requ	iency deviat	ion and the	i maximum ume.	
\succ	Minimum Value: the mi	nimum clock	information	n. The MHZ , p	pm and Tin	ne here res	pectively mean	
	the minimum oscillating	frequency, m	iinimum os	cillating freque	ency deviation	on and the	minimum time.	



6.9.2. Port: (X, Y, Z)



(X, Y, Z) stands for the chassis ID, slot number and port ID, respectively.





(X, Y, Z)	
	please refer to 6.8.1 Report.
	 Leftmost X-Axis Tick: In this filed you can set the starting time of the chart described above. Reference Line Range (+/-): In this filed, you can set the two reference lines of the chart described above.
	Mode (Speed): Set the transmitting speed here.
Configuration/Function	Test Time (Sec): Set the total testing time. The settings here will be reflected in the chart described above.
	Start Time: This area will display the test start time after the test is finished.
	End Time: This area will display the test end time after the test is finished.



6.10. Ping Function

As a network utility, **Ping** is widely used for testing if one specific host is reachable through its IP address. Also, **Ping** can be used to measure the time it takes to transmit packets from a local host to the designated computer located on a network and back. The Ping Function supports both IPv4 and IPv6 protocols, namely the **Ping IPv4 Function** and the **Ping IPv6 Function**.





Ping IPv4/IPv6 Function

The interface of the **IPv4 Ping Function** and the **IPv6 Ping Function** are nearly the same. The difference is the formats of the IP addresses are expressed by different versions.

	(240, 6, 1) - XM-RM681	(240, 6, 2) - XM-RM681
Excute Ping	S	
Ping Count	4	4
Ping Timeout(Sec.)	1	1
Ping Interval(ms)	1000	1000
Source MAC Address	00-22-A2-F0-06-01	00-22-A2-F0-06-02
Destination IP Address	192.168.1.1	192.168.1.1
Source IP Address	192.168.6.1	192.168.6.2
Gateway	192.168.6.250	192.168.6.250
Netmask	24	24
Progress State	0	۲
ICMP Reply	0	0
ICMP Timeout	0	0
ARP Reply	0	0
ARP Timeout	0	0
DUT MAC	n/a	n/a

Ping Function		
	000	Press the Clear button to set all counters to zero.
A. Control Buttons for All Ports	Nji	Port Map : you can choose the ports you want to execute the ping function here. Only the selected ports are listed in the table. The default setting is all ports are selected.
		Reset Port Map.
	-	Execute the ping function of all ports.
B. Ping Settings/Report	You can chang would like to ch double-click the manually. > Execute F > Ping Cour > Ping Time > Ping Inter > Source M > Destinatio > Source IP > Gateway: > Netmask: > Progress will be cha • Onu • Osy • O	e variables or view detailed information here. If you hange the value displayed here, please do so by e column you would like to modify, and input the value Ping: Press S to start the ping function of this port. Int: The number of times to ping. Pout: Ping timeout setup. Pout: Paddress: The destination IP address. Source: The source IP address. The IP address for the network gateway. The IP address for net mask. State: After pressing the Ping button, the icon here anging accordingly. WIN-RM is idle stem is perform ping command vstem got reply from destination IP estination IP is not replying Dy: Number of ICMP (Internet Control Message reply that occurs. eout: Number of ICMP (Internet Control Message imeout that occurs.



Ping Function	
	 ARP Reply: Number of ARP (Address Resolution Protocol) reply that occurs. ARP Timeout: Number of ARP (Address Resolution Protocol) timeout that occurs. DUT MAC: MAC address of DUT.





6.11. Pre-configuration

This is a function provided to facilitate the users to conduct the network address configuration. There are two sub-functions, **Get DUT MAC** and **Router NAT**.





6.11.1. Get DUT MAC

Δ	Get : 000		MAC		•	
		Select	Port	DUT IP	Get DUT MAC	DUT MAC
p	1	1	(240, 6, 1) - XM-RM681	192.168.1.1	I	n/a
Р	2	v	(240, 6, 2) - XM-RM681	192.168.1.1	😰 🔛	n/a

Get DUT MAC allows the user to automatically get the DUT MAC of the port and apply it to the packet settings of the stream.

Note: This function is available only when the DUT has an ARP reply function.

Get DUT MAC		
	000	Press the Clear button to set all counters to zero.
	UI.	Port Map : you can choose the ports you want to execute the Get DUT MAC function here. Only the selected ports are listed in the table. The default setting is all ports are selected.
A Control Buttons for All Ports	∎ ŝ	Reset Port Map.
A. Control Buttons for Air Forts	۶	Execute the Get DUT MAC function of all ports.
	2	The settings of all ports will be applied to the packet settings of the stream by clicking this button. You can check the result by view Stream Generation . For detailed information of Stream Generation , please refer to 6.2.1 . Stream Generation .
B. Settings/Report	Select: o conducte Stream. DUT IP: o then you DUT. Get DUT DUT MAG set the se result by informatio 6.2.1. Str DUT MAG addresse	nly the ports check here can be further d functions as Get DUT MAC and Set to double-click the cell in this column, and can manually set the IP address of the MAC: click ♥ button to execute the Get C function of this port; Click button to ettings to the stream. You can check the view Stream Generation. For detailed on of Stream Generation, please refer to ream Generation. C: This column will display the MAC as obtained by the Get DUT MAC function.



6.11.2. Router NAT



Router NAT is specially used when the DUT is a router. This function provides complete configuration information for testing the routers, which greatly facilitate the configuration work. The settings areas are divided into two types, the white areas and the gray areas. The content in the white area can be configured as the user's expectations while the content of the gray area is automatically obtained after running this function.



Router NAT Clear the settings in the gray cells. 000 D Start running the Router NAT function. The settings here will be applied to the packet settings of the stream by clicking this button. You can check the result by 上 view Stream Generation. For detailed A. Control Buttons for All Ports information of Stream Generation. please refer to 8. Stream Generation. With Keep Active button activated, the system will transmit low flow data by correct configuration to ensure the 0 smoothness of the link. If the correct configuration is not yet obtained, no actions should be taken. The upper **Router** table shows the configurations of the router. Router Setting WAN LAN WAN port settings of the router under test. LAN port settings of the router under test. -Connection Type Static IP DHCP Server Off Source MAC Source MAC Source IP 192.168.10.2 192.168.0.1 Source IP **B.** Settings/Report The lower NuStreams Port table shows the configurations of the testing ports. NuStreams Setting WAN LAN Settings of the NuStreams port connecting to the router WAN port. Settings of the NuStreams port connecting to t (240, 6, 1) - XM-RM681 🔻 Port Port (240, 6, 1) - XM-RM681 Source MAC 00-22-A2-00-00-01 Source MAC 00-22-A2-00-00-02 192.168.10.1 Source IP 192.168.0.2 Source IP UDP SPort(dec) 9000 UDP SPort(dec) 8000 VLAN VLAN



7. Reserve/Release Module

As mentioned previously, before making any test configurations, you have to reserve the ports. You can reserve/release the ports by click the **Reserve/Release Module** button.

ę	🐻 NuV	VIN-RM					
	File	View	Control	Statistics	Tool	Language	Help
	۱ 🛋	ž 🛃		🗄 🔀 I	R3 13	8 🗠 😘	😋 🖓 🚥

Then the following window will pop up.

www.xtramus.com

Reserve/Release Modules	×
Unlock Module (Chassis, Board, Port)	Lock Module (Chassis, Board, Port)
(0, 2, 1) - XM-RM731 (0, 2, 2) - XM-RM731 (0, 3, 1) - XM-RM751 (0, 3, 2) - XM-RM751 (0, 3, 3) - XM-RM751 (0, 3, 4) - XM-RM751 (0, 4, 1) - XM-RM761 (0, 4, 2) - XM-RM761 (0, 4, 3) - XM-RM761 (0, 4, 4) - XM-RM761 (0, 5, 1) - XM-RM781	
Load Last Configuration	OK Cancel

All available ports will be displayed in the **Unlock Module** field in the format of **(X, Y, Z) – Module Name**, where **(X, Y, Z)** is module card's port ID.

To reserve a port for tests, please click a port listed in the **Unlock Module** field, and click the **>** button. The port you've selected will be added to the **Lock Module** field. If you would like to reserve all ports available, click the **>>** button instead.

To release a port, please click a port listed in the **Lock Module** field, and click the **<** button. The port you've selected will be removed from the **Lock Module** field. If you would like to release you selected, click the **<<** button instead.

Please press **OK** to apply all the settings you've made, or press **Cancel** to cancel all the setting you've made.

■ ■ Reserved Ports
■ 0, 2, 1): RM731
■ 0, 2, 2): RM731

A **Processing...** window will pop up, displaying the port reserving/releasing process. All ports you've reserved will be displayed on **Function View** as shown left.



8. Editing Protocol with Frame Data Edit Window

You can set the frame protocol or view the contents of the frames with the Frame Date Edit window.

A Frame Data Edit window will pop up as shown in the picture down below:

 Ethernet II 	 User Defined 	Ethem MDS H Fibre C	et II, Src eader(Un bannel	: 00:2 know	2:a2: n(0)/	00:0 Unkn	2:01 (own(1	00:22 (1))	2:a2:	00:0	1:01),	Dst:	ff:ff:ff:	ff:ff:ff (f	:ff:ff:ff:ff	:ff)	
Tags		🗄 [Malfor	med Pack	et: F	C]												
None	🔘 Q-in-Q																
O VLAN	O MPLS																
Layer 3 Header	ADD																
 IPv4 IPv6 	Pause																
Laver 4 Header																	
 None 	ICMP/IP	0000000	00 01	02 0	3 04	05 EE	06 01	7 08	09	0A 0	B 0C	0 D 0	DE 0F	00000	ÿ.".t		
○ TCP/IP	IGMP/IP	00000010	00 00	00 0	0 00	00	00 00	00 0	00	00 0	0 00	00 0	0 00				
O UDP/IP	© ICMPv6	00000030	00 00	00 0	0 00	00	00 01	000	00	00 0	0						

		Descriptions
	Ť	Load a previously saved configuration file.
Α	<u>(</u>	Set all setting in Frame Data Edit window to default.
	B 1	Change to the user defined mode. You can edit the contents of the packet byte by byte through this function.
В	You can se	lect the protocols for the frame here.
С	Frame View	w displays the protocols of the frame.
D	This section	n displays the detailed contents of the frame per byte.

The following sections will be focusing on settings available for various protocols.





8.1. Link Layer Type

8.1.1. Ethernet II

MAC Address		
Destination MAC Address	FF - FF - FF - FF - FF	Broadcast
Source MAC Address	00 - 22 - A2 - 00 - 02 - 01	

The Ethernet II setting page allows you to set MAC Addresses.

MAC Address	S
Destination Address	You can set the Destination MAC Address here in this field.
Source Address	You can set the Source MAC Address here in this field.
Broadcast	Press the Broadcast button to set the Destination MAC Address to broadcast MAC Address (FF-FF-FF-FF-FF).

8.1.2. IPX

MAC Address									
Destination Address:	FF-FF-FF-FF-FF								
Source Address:	00-22-A2-00-04-01								
LLC Parameters									
Length 0	DSAP E0								
Control Field 03	SSAP E0								

IPX stands for **Internetwork Packet Exchange**, an OSI-model Network layer protocol in the IPX/SPX protocol stack. Also, you can set LLC (Logical Link Control) headers on packets here as well.

MAC Address	5
Destination Address	You can set the Destination MAC Address here in this field.
Source Address	You can set the Source MAC Address here in this field.
LLC Paramet	ers
Length	The length of LLC headers.
Control Field	The Control Field allows you to input codes that represent command, response, and sequence number information.
DSAP	DSAP stands for Destination Service Access Point . Service Access Point (SAP) is an identifying label for network endpoints.
SSAP	SSAP stands for Source Service Access Point . Service Access Point (SAP) is an identifying label for network endpoints





8.1.3. User Defined

User Defined Frame V	iow			
00 01 0	2 03 04 05	06 07 08 09	OA OB OC OD OE OF	
00000020 00 00 0	0 00 00 00	00 00 00 00	00 00 00 00 00 00 .	
00000030 00 00 0	0 00 00 00	00 00 00 00	00 00 .	
Data Pattern Length	60		Set	
Data Facterin Length			000	
	Apply	Car	ncel	

You can edit packets manually here. To input values, please click the value you would like to change.

User Defined				
Data Pattern Length	You can set the frame length here in this field. The range of the Data Pattern Length is from 54 to 2048 .			
Set	Save and apply all the settings you've made here.			
Apply	Save and apply all the settings you've made here and exit.			
Cancel	Give up all the settings you've made here and exit.			



8.2. Tags

8.2.1. VLAN

VLAN Tag Parameters(L1)	
User Priority CFI VID	Tag
0 ▼ Reset ▼ 0	VLAN L2
VLAN Tag Parameters(L2)	
User Priority CFI VID	Тад
0 v Reset v 0	VLAN L3
VI AN Tag Parameters(I 3)	
ter it rug i arameter o(co)	
User Priority CFI VID	
0 v Reset v 0	

VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location.

VLAN Tag Parameters (L1/L2/L3)			
Llear Priority	VLAN Priority (IEEE P802.1p) indicates the priority level of frames transmitted from		
Oser i nonty	each port. The value can be set from 0 to 7.		
	CFI stands for Canonical Format Indicator , a 1-bit field of the Ethernet frame that		
CEI	indicates if the packets' MAC addresses are non-canonical format or canonical		
GFI	format. To set the inserting packets as non-canonical format, please click the		
	scroll-down menu and choose Set, and vice versa.		
	VID stands for Virtual ID, an ID number for identifying different virtual LANs on the		
VID	network. You can set the VID for each port.		
Tag	You can add VLAN Tag Parameter (L2/L3) by check the VLAN L2/L3 check boxes.		

8.2.2. Q-in-Q

S-Tag	
Ether Type User Priority CFI VID	
88:A8 0 • Reset • 0	×
C-Tag	
Ether Type User Priority CFI VID	
81:00 0 • Reset • 0	·

Q-in-Q is an Ethernet networking standard that allows multiple VLAN headers to be inserted into a single frame. You can set the S-TAG (Service-Tag) and C-TAG (Customer-Tag) here.

S-Tag/C-Tag	
	You can input the Ether Type for the inserting packets here in this field. Ether Type is
Ether Type	a two-octet field in an Ethernet frame, used to indicate which protocol is
	encapsulated in the Payload of an Ethernet Frame.
llsor Priority	VLAN Priority (IEEE P802.1p) indicates the priority level of frames transmitted from
Oser i nonty	each port. The value can be set from 0 to 7.
CEL	CFI stands for Canonical Format Indicator, a 1-bit field in frames for compatibilities
	of Ethernet and Token Ring networks.
VID	VID stands for Virtual ID, an ID number for identifying different virtual LANs on the
	network. You can set the VID for each port.



8.2.3. MPLS

labels	MPLS Label	0
Label #1	Experiential Use	0
	Time to Live	0

MPLS stands for **Multiprotocol Label Switching**, a mechanism in high-performance telecommunications networks which directs and carries data from one network node to the next with the help of labels.

MPLS Labels	
MPLS Label	You can add the MPLS label here in this field. The range of the MPLS Label is from 0 to 1048575 .
Experiential Use	This field allows you to set the VLAN priority. The value can be set from 0 to 7.
Time to Live	This field allows you to set the life span of the MPLS label. The range of the Time to Live is from 0 to 255 .
Append	Press this button to add the current settings to the Label field on the left part of MPLS Labels .
Remove	Press this button to remove the selected label from the Label field on the left part of MPLS Labels .



8.3. Layer 3 Header

8.3.1. IPv4

Frame Data Edit				
Overview Ethernet II	Internet Protocol Address Destination Address 192.168.1.1 Source Address 192.168.4.1			
MPLS	DSCP (HEX) 00	Identification		
Frame View	DSCP Preview (binary)	Fragment	May Fragment ▼ Last Fragment ▼	
		Time to Live	64 (v)	
	Options Router Alert	10000		
	Note For Differentiated Services,the two-bit currently unused(CU) field is set to 0	l.		
	OK Ca	ncel		

IPv4 stands for **Internet Protocol version 4**, a connectionless protocol for use on packet-switched Link Layer networks. You can set destination/source IPv4 addresses here, as long as related headers here.

IPv4	
Internet Protocol Address	You can set the destination/source IPv4 addresses here in these fields.
DSCP(HEX)/ DSCP Preview(Binary)	DSCP stands for Differentiated Services Code Point. You can set the DSCP value in hex here. And the hex DSCP value will be automatically converted to binary in the down below DSCP Preview (Binary) field.
Identification	This field allows you to set the identification primarily used for uniquely identifying fragments of an original IP datagram. The range of the Identification is from 0 to 65535 .
Fragment	These two fields allow you to set the field that control or identify fragments.
Fragment Offset (x8)	The fragment offset field, measured in units of eight-byte blocks, is 13 bits long and specifies the offset of a particular fragment relative to the beginning of the original unfragmented IP datagram. The range of the fragment offset is from 0 to 8191.
Time to Live	This field allows you to set the life span of the data. The range of the Time to Live is from 0 to 255 .
Protocol	This field allows you to set the protocol tag. You can set the protocol as 1-ICMP, 2-IGMP, 6-TCP, 17-UDP, 255-Reserved, and User Select.
Router Alert	



8.3.2. IPv6

]	IPv6 Address						
	Source IP Add	ress	0000:000	0:0000:00	00:0000:00	000:C0A8:	0201
	Destination IP	Address	0000:000	0:0000:00	00:0000:00	000:C0A8:	0101
1	Traffic Class	0		Flow Label	0		
	Hop Limit	0		Next Header	255 - Reserved	-	

IPv6 stands for Internet Protocol version 6, an Internet Layer protocol for packet-switched

internetworking and provides end-to-end datagram transmission across multiple IP networks. You can set destination/source IPv6 addresses here, as long as related headers here.

IPv4			
IPv6 Address	You can set the destination/source IPv6 addresses here in these fields.		
Traffic Class	This field allows you to set the IPv6 protocol Traffic Class header. The range of the Traffic Class is from 0 to 255 .		
Payload Length	This field allows you to set the IPv6 protocol Payload Length header. The range of the Payload Length is from 0 to 65535 .		
Next Header	This field allows you to set the IPv6 protocol Next Header. You can set the protocol as 1-ICMP, 2-IGMP, 6-TCP, 17-UDP, 58-ICMPv6, and 255-Reserved.		
Flow Label	This field allows you to set the IPv6 protocol Flow Label header.		
Hop Limit	This field allows you to set the IPv6 protocol Hop Limit header.		



8.3.3. ARP

Hardware Type	1 - Ethernet 🔹		
Protocol Type	08:00	Sender Hardware Address	00-00-00-00-00
Hardware Address Length	6	Sender Protocol Address	0.0.0.1
Dratasal Address Length	4	Target Hardware Address	00-00-00-00-00
Protocol Address Lengui		Target Protocol Address	0.0.0.1
Operation	1 - ARP Request 🔹		·

ARP stands for **Address Resolution Protocol**, a protocol used for resolution of Layer 3 addresses into Layer 2 addresses during internetwork transmissions.

ARP		
Hardware Type	This field specifies the network protocol type. You can set the Hardware Type as 0-Unknow or 1-Ethernet.	
Protocol Type	The Protocol Type field allows you to set the Ethernet frame which is used to indicate which protocol is encapsulated in the Payload of an Ethernet Frame. For example, Protocol Type as 08:00 indicates IPv4 protocol.	
Hardware Address Length	This field allows you to set length (in octets) of a hardware (MAC) address.	
Protocol Address Length	This field allows you to set length (in octets) of a protocol (IP) address.	
Operation	This field allows you to set the operations the sender will take. The operations include 0-Unknown, 1-ARP Request, 2-ARP Reply, 3-RARP Request, and 4-RARP Reply.	
Sender Hardware/Protocol Address	You can set the sender's (source) MAC/IP addresses here.	
Target Hardware/Protocol Address	You can set the target's (destination) MAC/IP addresses here.	

8.3.4. Pause

MAC Address			
Destination Address:		01-80-C2-00-00-01	
Source Address:		00-22-A2-00-02-01	
Pause Quanta			
Type:	88:08	Opcode: 00:01	
Pause:	32767		

The PAUSE frame is a frame that halts the transmission of the sender for a specified period of time.

Pause	
Destination Address	This field displays the destination MAC address.
Source Address	This field displays the source MAC address.
Туре	This field displays the protocol type of the Pause Frame (88:08).
Opcode	This field displays the Operation Code (opcode).
Pause	You can set the pause value here in this field.



8.4. Layer 4 Header

8.4.1. TCP/IP

TCP Paramters Source Port Destination Port Sequence Number Acknowledgement Number Header Length(x4) Window Urgent Pointer Checksum	9 4 60 4 0 4 0 4 5 4 2161 4 1 4 Correct 1	Flags Urgent Pointer Valid Acknowledge Valid Push Function Reset Connection Synchronize Sequence No More Data From Sender
Apply Cancel		

TCP stands for **Transmission Control Protocol**, one of the two original components of the suite,

complementing the Internet Protocol (IP), and therefore the entire suite is commonly referred to as TCP/IP.

TCP/IP	
Source Port	You can set the source port number here in this field.
Destination Port	You can set the destination port number here in this field.
Sequence Number	This field allows you to set the TCP sequence number.
Acknowledgement Number	This field allows you to set the TCP acknowledgement (ACK) number.
Header Length (x4)	This field allows you to set the header length.
Urgent Pointer	This field displays the Urgent Pointer. If you would like to set the urgent pointer, please check the Urgent Pointer Valid check box.
Flags	This field contains various flags of TCP, including Urgent Pointer Valid , Acknowledge Valid , Push Function , Reset Connection , Synchronize Sequence , and No More Data From Sender . To add a flag to the TCP header, please check the check box in the Flags field.

8.4.2. UDP/IP

UDP Paramters	
Source Port	9
Destination Port	80
Length	8
Checksum	Correct 👻

UDP stands for **User Datagram Protocol**, one of the core members of the Internet Protocol Suite that allows computer applications send messages (referred to as datagrams) to other hosts on an Internet



Protocol (IP) networks without requiring prior communications to set up special transmission channels or data paths.

UDP/IP	
Source Port	You can set the UDP source port number here in this field.
Destination Port	You can set the UDP destination port number here in this field.
Length	The length in bytes of the entire datagram including header and data.
Checksum	You can set the checksum of the datagram, including Null, Correct and
	Incorrect.





8.4.3. ICMP/IP

ICMP Paramters		
Туре	0 - Echo Reply	•
Code	00	
ID	0	×
Sequence	0	×

ICMP stands for **Internet Control Message Protocol**, one of the core protocols of the Internet Protocol Suite that is used by the operating systems of networked computers to send error messages indicating, for example, that a requested service is not available or that a host or router could not be reached.

ICMP/IP	
Туре	You can set the ICMP type here with the scroll-down menu. The ICMP
	types available here include 0-Echo Reply and 8-Echo Request.
Code	You can set the subtype to the given type here in this field.
ID	You can set the ICMP ID here in this field.
Sequence	You can set the ICMP sequence number here in this field.



8.4.4. IGMP/IP

IGMP stands for **Internet Group Management Protocol**, a communications protocol used by hosts and adjacent routers on IP networks to establish multicast group memberships.

There are three different versions available here: **IGMP version 0** (defined in RFC 988), **IGMP version 1** (defined in RFC 1054, 1112, 1122, and 1812), and **IGMP version 2** (defined in RFC 2236 and 2113). The IGMP parameter setting pages will change according to the IGMP version you've chosen on the **Version** scroll down menu.

IGMP Paramters		
Version	0	
Туре	Create Group Request 🔹	
Code	00	
Identifier	00:00:00:00	
Group Address	0.0.0.1	
Access Key	00:00:00:00:00:00:00:00	

IGMP/IP Version 0	
Version	The Version scroll-down menu allows you to set the IGMP version.
	You can set the IGMP type here. The IGMP types in the scroll-down menu
Туре	include Create Group Request/Reply, Join Group Request/Reply, Leave
	Group Request/Reply, and Confirm Group Request/Reply.
Code	You can input Max Resp Code here in this field.
Identifier	You can input the Identifier here in this field.
Group Address	You can set the group multi-cast address here in this field.
Access Key	You can set the access key values here in this field.



IGMP Paramters		
Version	1	
Туре	Group Membership Query 💌	
Group Address	0.0.0.1	

IGMP/IP Version 1	
Version	The Version scroll-down menu allows you to set the IGMP version.
Туре	You can set the IGMP type here. The IGMP types in the scroll-down menu include Create Group Request/Reply, Join Group Request/Reply, Leave Group Request/Reply, and Confirm Group Request/Reply.
Group Address	You can set the group multi-cast address here in this field.

IGMP Paramters				
Version	1 •			
Туре	Group Membership Query 💌			
Group Address	0.0.0.1			

IGMP/IP Version 2		
Version	The Version scroll-down menu allows you to set the IGMP version.	
Туре	You can set the IGMP type here. The IGMP types in the scroll-down menu include Create Group Request/Reply, Join Group Request/Reply, Leave Group Request/Reply, and Confirm Group Request/Reply.	
Max Response Time	This field allows you to set the maximum allowed time before sending a responding report.	
Group Address	You can set the group multi-cast address here in this field.	



8.5. Frame View

Frame Data Edit		
Overview Ethernet II VLAN IPv4 IGMP/IP Frame View	Item Name Value B-Ethernet II - -D-VLAN, Virtual Local Area Network - -D-IPv4, Internet Protocol version 4 - -D-IGMP, Internet Group Management Protocol -	
	0000 FF F	
	OK Cancel	

You can view the headers/tags you've configured here. Also, you can high-light and manually edit the specific code for the headers/tags here as well.



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