



NuStreams-P9M User Manual

Foreword

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Revision History

Date	USM Version	History
November. 10, 2008	1.0	
July,2009	1.1	Modify NuStreams-P9M Utility
July,2009	1.2	Modify NuStreams-P9M Utility and Items in LCD of the machine
March, 2010	2.0	Apply to new manual format. Revise all concepts base on the previous manual.
June, 2010	2.1	Add brief descriptions regarding to NuStreams-P9M Test Types.

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1. NuStreams-P9M Overview

1.1. General Description of NuStreams-P9M

NuStreams-P9M is a stand-alone tester for testing switches and routers (with switch ports) with 8 LAN ports and 1 WAN port at wirespeed. **NuStreams-P9M**'s compact, lightweight designs with built-in tasks make it an ideal solution for tests on production line, DUT performance analysis and troubleshooting at service centers or maintenance outlets as well.



NuStreams-P9M provides pre-defined templates containing customized parameters including number of ports tested, packet transmitting duration, DHCP test enabling/disabling, sending UDP/TCP packets, load utilization, packet length, packet loss tolerance, and etc. Configurations for tests can be done without utility softwares or any specific technical know-how.

Under **NuStreams-P9M**'s Auto Test mode, a DUT's switch traffic ability is tested via comparing the number of transmitted packets/received packets between one of the LAN port (or switch port) and the WAN port.

With high reliable test results and the best cost/performance ratio, **NuStreams-P9M** is the best solutions available for router and switch tests.

Key Advantages of NuStreams-P9M

- Multi-function tester for network devices such as network switches and routers
- Reliable testing capability– repeated and conclusive tests to validate the functionality and performance of a DUT (device under test) at various speeds and load conditions
- Flexible WAN port connection for testing routers:
 - Static IP
 - DHCP (Dynamic Host Configuration Protocol)
- Save the expense of developing and learning complicated testing utility softwares/scripts
- High throughput during DUT tests and easy to maintain
- Automatic test procedure makes NuStreams-P9M a more productive solution than other traditional PC-based solutions
- Compact, lightweight and portable

1.2. Residential Gateway & Switch

NuStreams-P9M can perform tests on **Residential Gateway (Broadband Router)** and **Switch**. Tests for Residential Gateway and Switch have different test subjects and parameters. Please refer to the table down below for more information about all the parameters that can be configured before performing tests.

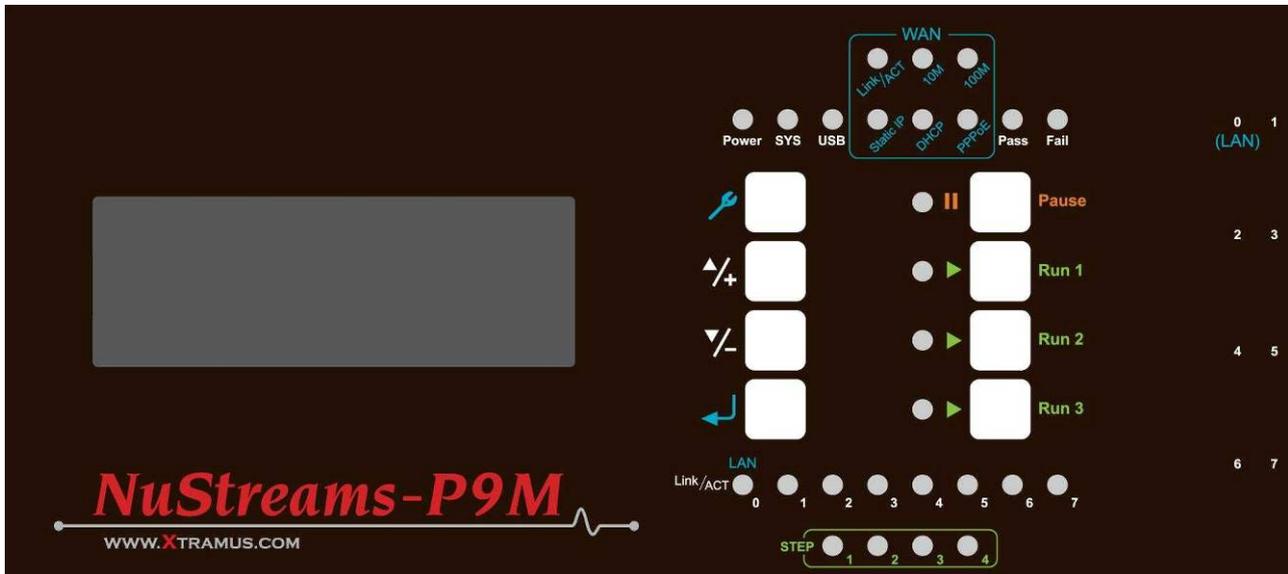
Residential Gateway	
WAN Type	DHCP / Static IP
WAN (Static IP)	Default IP: 172.17.5.220
Media Type	10M Full / 100M Full
Check Vendor ID	off / on
MAC Range	00-00-00
IP Type	TCP / UDP
TCP Type	HTTP / FTP
Session	1~8
Frame Length	64 / 128 / 256 / 512 / 768 / 1024 / 1280 / 1518 bytes
W-L Utilization	10/30/50/60/70/80/90/100 (WAN → LAN)
L-W Utilization	10/30/50/60/70/80/90/100 (LAN → WAN)
Test Time	1s-10s / 30s / 1min-3min / 5min
Loss/Excess Tolerance	0 / 100 / 1000 / 3000 / 5000 / 7000 / 9000 / 9999 Pkts
Link Wait (Minimum&Time Out)	2~200s
Switch	
Speed	10M Half / 10M Full / 100M Half / 100M Full
Ports	01 / 012 / 0123 / 01234 / 012345 / 0123456 / 01234567
Frame Length	64 / 128 / 256 / 512 / 768 / 1024 / 1280 / 1518 / 1600 bytes
Test Time	1s-10s/30s/1min-3min/5min
Loss/Excess Tolerance	0 / 100 / 1000 / 3000 / 5000 / 7000 / 9000 / 9999 pkts
Test Utilization	10 / 30 / 50 / 60 / 70 / 80 / 90 / 100
Link Wait (Minimum&Time Out)	2~200s
Learning Time	1~10s

Note: All test parameters can be configured with NuStreams-P9M utility software. For example, packet loss tolerance can be set from 0 to 9999.

1.3. NuStreams-P9M Panel Functions Overview

NuStreams-P9M's LEDs, buttons, and interface ports are located on its **Front, Left and Right Side Panels**.

Front Panel



System Status & Testing Result Feedback Interface																									
LCD	4 x 20 characters LCD that display system information, status, and menu																								
LEDs	<table border="0"> <tr> <td>System</td> <td>➤ Power: Power ON</td> <td>➤ SYS: System ready</td> <td>➤ USB: USB connection status</td> </tr> <tr> <td>WAN</td> <td>➤ Link/Act: Connected with DUT WAN port</td> <td>➤ 10M: 10 Mbps connection linked</td> <td>➤ 100M: 100 Mbps connection linked</td> </tr> <tr> <td></td> <td>➤ Static IP: Using static IP as router WAN connection</td> <td colspan="2">➤ DHCP: Using DHCP as router WAN connection</td> </tr> <tr> <td>Test</td> <td colspan="2">➤ Pass: DUT passes the test</td> <td>➤ Fail: DUT does not pass the test</td> </tr> <tr> <td>Hotkey</td> <td>➤ Pause: Pause current running test</td> <td colspan="2">➤ ▶ Run 2: Test Task of Run 2 is running</td> </tr> <tr> <td></td> <td>➤ ▶ Run 1: Test Task of Run 1 is running</td> <td colspan="2">➤ ▶ Run 3: Test Task of Run 3 is running</td> </tr> </table>	System	➤ Power: Power ON	➤ SYS: System ready	➤ USB: USB connection status	WAN	➤ Link/Act: Connected with DUT WAN port	➤ 10M: 10 Mbps connection linked	➤ 100M: 100 Mbps connection linked		➤ Static IP: Using static IP as router WAN connection	➤ DHCP: Using DHCP as router WAN connection		Test	➤ Pass: DUT passes the test		➤ Fail: DUT does not pass the test	Hotkey	➤ Pause: Pause current running test	➤ ▶ Run 2: Test Task of Run 2 is running			➤ ▶ Run 1: Test Task of Run 1 is running	➤ ▶ Run 3: Test Task of Run 3 is running	
	System	➤ Power: Power ON	➤ SYS: System ready	➤ USB: USB connection status																					
	WAN	➤ Link/Act: Connected with DUT WAN port	➤ 10M: 10 Mbps connection linked	➤ 100M: 100 Mbps connection linked																					
		➤ Static IP: Using static IP as router WAN connection	➤ DHCP: Using DHCP as router WAN connection																						
	Test	➤ Pass: DUT passes the test		➤ Fail: DUT does not pass the test																					
	Hotkey	➤ Pause: Pause current running test	➤ ▶ Run 2: Test Task of Run 2 is running																						
	➤ ▶ Run 1: Test Task of Run 1 is running	➤ ▶ Run 3: Test Task of Run 3 is running																							
LAN Link/ACT	NuStreams-P9M's LAN ports are connected to DUT's (switch or router) LAN ports. LAN LED 0~7 will be on accordingly																								
STEP	NuStreams-P9M's testing process includes 4 steps. STEP LED 1~4 will show the testing process accordingly																								
Configuration Buttons (Left Side)																									
	Enter main menu, return to the previous menu, or cancel the changes you've made																								
	Move selection cursor up or change test parameters																								
	Move selection cursor down or change test parameters																								
	Enter selected menu or apply the changes you made																								
Operation Buttons (Right Side)																									
 Pause	Pause the test that is currently running																								
▶ Run1	Start Run 1 test. Up to 4 tasks can be configured in each Run hotkey. Press this button and all tasks stored within will start																								
▶ Run2	2 nd hotkey as above																								
▶ Run3	3 rd hotkey as above																								

Note: For more information regarding to NuStreams-P9M's LED status, please refer to "1.4. NuStreams-P9M LED Status".

Left Panel


Port	Function
Console	Connecting NuStreams-P9M with Xtramus NuPAD for test management
Mini-USB 	Connecting NuStreams-P9M with PC for test management
WAN (Link/ACT Speed)	Connecting NuStreams-P9M with DUT WAN port
12V DC Power Jack	NuStreams-P9M power jack

Right Panel


Port	Function
Ethernet LAN Port	10/100M Ethernet LAN Ports with RJ-45 Connector × 8

1.4. NuStreams-P9M LED Status

The table down below contains NuStreams-P9M's front panel LED status and their meanings.

LED		Status	Description
Power		On	NuStreams-P9M is on
SYS		Off	NuStreams-P9M's CPU system down
		On	NuStreams-P9M CPU system initializing
		Green Light Blinking	NuStreams-P9M's CPU system active and running
		Yellow Light On	NuStreams-P9M is not starting properly
USB		Green Light On	NuStreams-P9M is connecting to PC via USB cable
WAN	10M/100M	Green Light On	NuStreams-P9M's connection with DUT is active
	Link/ACT	Green Light On	WAN connection established and standing-by
		Green Light Blinking	Test packets sending via WAN ports
	Static IP	Blue Light On	DUT WAN connection is set to Static-IP
	DHCP	Amber Light On	DUT WAN connection is set to DHCP
Pass		Green Light On	DUT test passed
Fail		Red Light On	DUT test failed
LAN	Link/ACT 0 ~ 7	Green Light On	NuStreams-P9M's connection with DUT is active
		Green Light Blinking	The corresponding LAN port is performing test
STEP	1	Green Light On	Auto-Negotiation
	2		Residential Gateway: Waiting ARP Reply
			Switch: Sending Learning Packets
	3		Starting DUT tests
4	Test complete, generating test results and report		

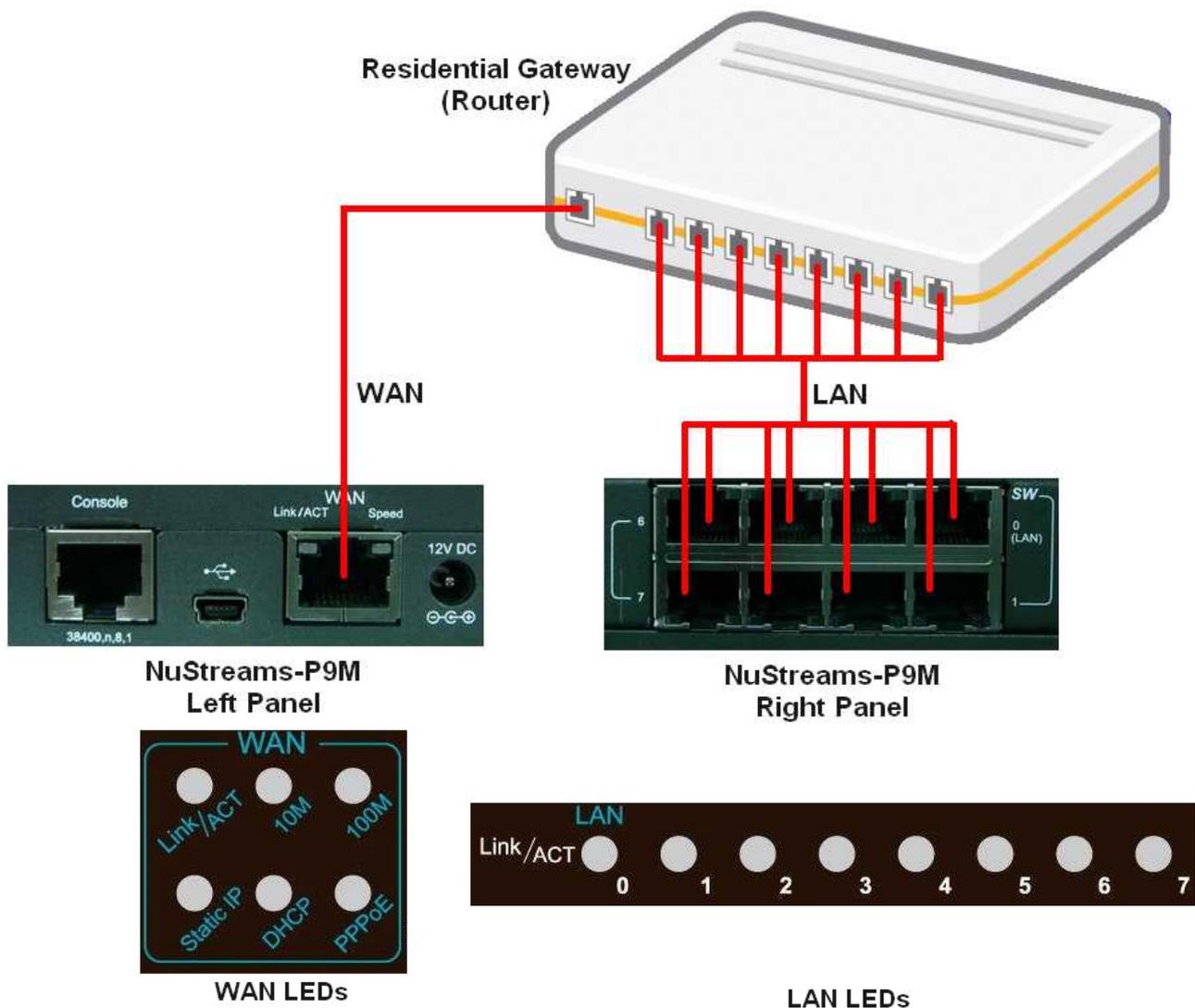
2. Hardware Installation for Testing DUTs

As we mentioned in “1.3 Residential Gateway & Switch”, NuStreams-P9M can perform tests on **Residential Gateway** (general commercial router) and **Switch**. Installing NuStreams-P9M with different types of DUTs requires different installation process.

Please see the installation structure mentioned down below for installing NuStreams-P9M with Residential Gateway (router) and Switch.

2.1. For Residential Gateway (Router) Test

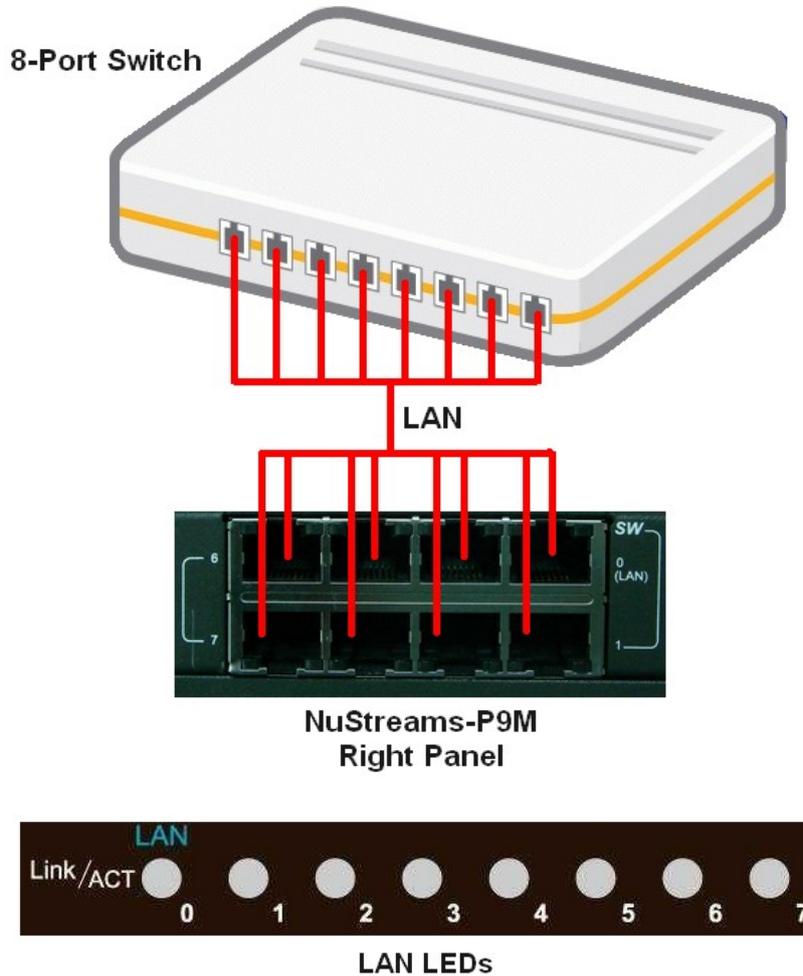
While performing tests on Residential Gateway (Router), both **WAN** and **LAN** ports of the DUT must be connected to NuStreams-P9M with CAT-5 UTP cables as shown in the figure down below.



If both NuStreams-P9M and the DUT are connected with CAT-5 UTP cables correctly, NuStreams-P9M's LAN and WAN LEDs will be **ON** according to the test parameter you configured previously.

2.2. For Switch Test

While performing tests on Switch, DUT **LAN** ports must be connected to NuStreams-P9M with CAT-5 UTP cables as shown in the figure down below.



If both NuStreams-P9M and the DUT are connected with CAT-5 UTP cables correctly, NuStreams-P9M's LAN LEDs will be **ON** according to the test parameter you configured previously.

3. NuStreams-P9M Control Buttons & LCD

All parameters for DUT tests can be configured via NuStreams-P9M's control buttons located on its front panel. Also, configuring, testing, and system information will be displayed and viewed on NuStreams-P9M's LCD screen.

Please see sections down below for more details about NuStreams-P9M's control panel/LCD.

3.1. NuStreams-P9M Control Buttons Overview

With NuStreams-P9M's control buttons located on its front panel, all test parameters and system configurations can be set via these buttons.

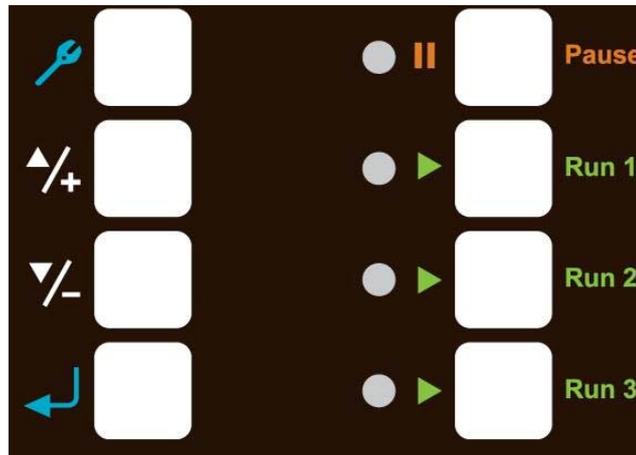
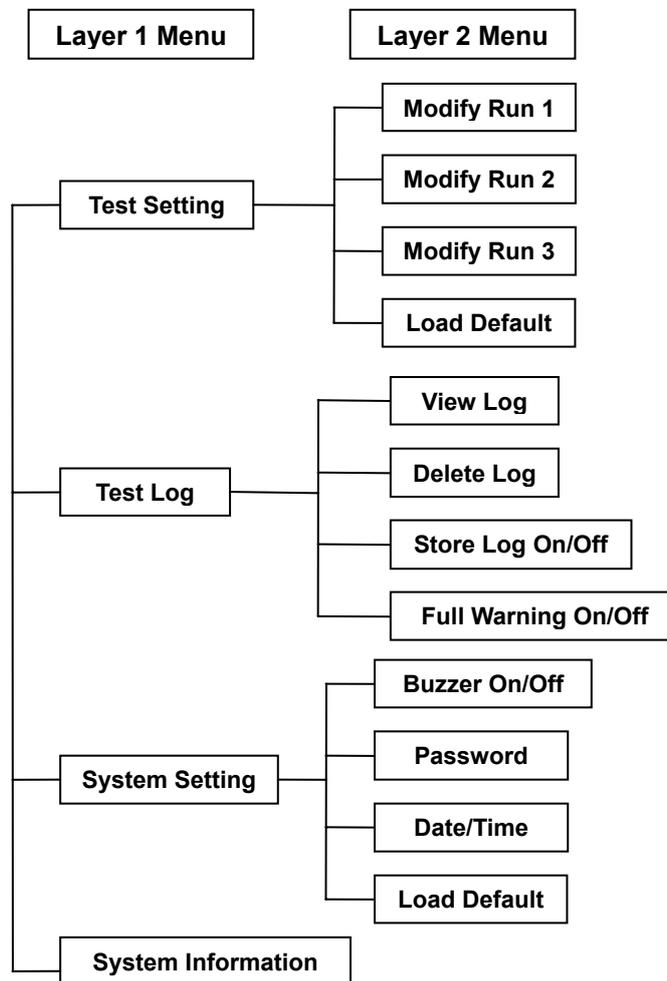


Table down below is a list of brief descriptions for NuStreams-P9M's control buttons.

Configuration Buttons (Left Side)		Operation Buttons (Right Side)	
	Enter main menu, return to the previous menu, or cancel the change you've made	 Pause	Pause the test that is currently running
▲/+	Move selection cursor up or change test parameters	▶ Run1	Start Run 1 test. Up to 4 tasks can be configured in each Run hotkey. Press this button and all tasks stored within will start
▼/-	Move selection cursor down or change test parameters	▶ Run2	2 nd hotkey as above
	Enter selected menu or apply the changes you made	▶ Run3	3 rd hotkey as above

3.2. NuStreams-P9M LCD Overview

All configuration options and system information can be viewed via NuStreams-P9M's LCD screen. All options and their functions contained in the menu are listed down below:



Layer 1 Menu	Layer 2 Menu	Brief Description
Test Setting	Modify Run 1 Modify Run 2 Modify Run 3	You can configure test parameters for Run 1~3 under this menu. Each Run can hold up to 4 tasks
	Load Default	Restore all parameters stored in Run 1~3 to default value
Test Log	View Log	View test logs generated after the tests are complete
	Delete Log	Delete all logs stored in NuStreams-P9M
	Store Log	Test reports will be stored automatically if this function is enable
	Full Warning	System will issue warnings when log storage memory is running out
System Setting	Buzzer	If enabled, system will buzz whenever a button is pressed
	Password	You can set new password for the system under this menu
	Date/Time	System date and time can be configured under this menu
	Load Default	Restore all system settings to default value
System Information	N/A	Display detailed system information

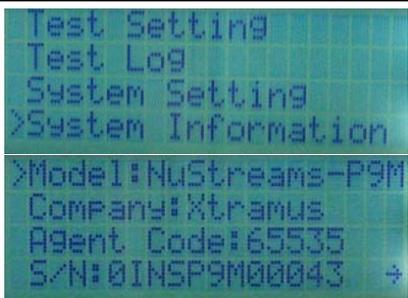
3.3. Operating NuStreams-P9M with Control Buttons & LCD

This section contains detailed instructions about setting your NuStreams-P9M via control buttons and LCD. All NuStreams-P9M's functions are divided into different parts and listed in the tables down below.

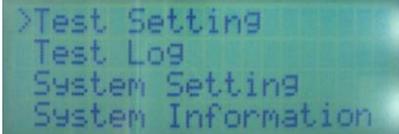
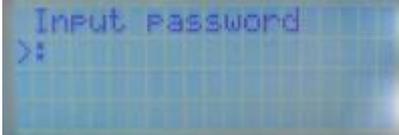
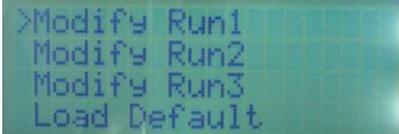
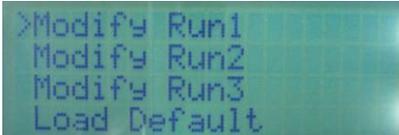
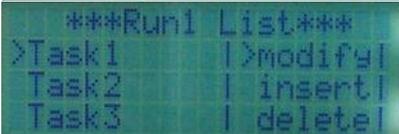
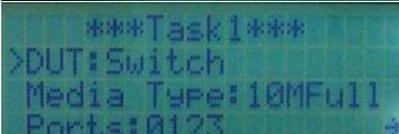
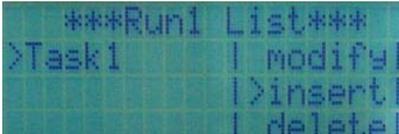
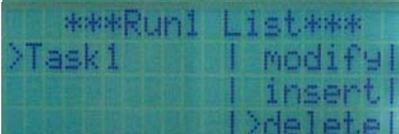
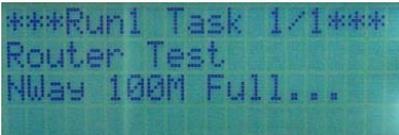
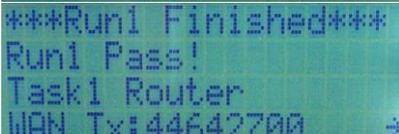
Basic Functions

Function	Control Button Action	LCD Display
Entering Main Menu	Press  button.	
Moving Selection Cursors & Entering Selected Option	Press  /+ or  /- buttons. Press  button to enter the menu option you chose.	
Back to Previous Menu	Press  button.	

System Information

Function	Control Button Action	LCD Display
Entering System Information Menu	Move the > cursor to " System Information ", and press  button. You can scroll up/down the test report by pressing  /+ or  /- buttons.	

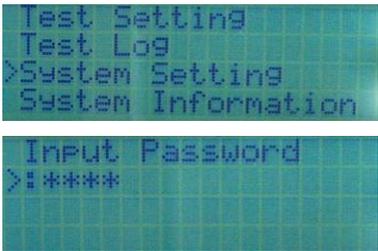
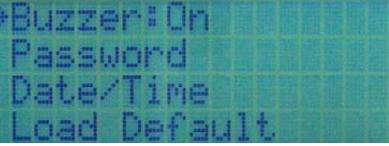
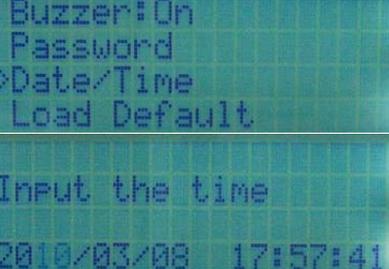
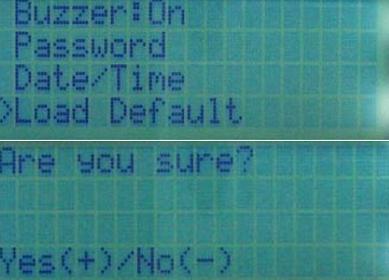
Test Configuring & Performing

Function	Control Button Action	LCD Display
Entering Test Setting Menu	Move the > cursor to “ Test Setting ”, and press ↵ button. NuStreams-P9M will prompt you to input the system password. The default password is ▲/+ ▲/+ ▲/+ ▲/+ . Press ↵ button after inputting the password to enter the test setting menu.	  
Modifying Test Parameters	<p>Press ▲/+ or ▼/- buttons to choose which “Run” you would like to modify. Press ↵ button to start configuring the selected “Run”. Choose “Modify” and press ↵ to start configuring parameters for the Task you’ve chosen.</p> <p>Press ▲/+ or ▼/- buttons to choose which parameter you would like to configure, and press ↵ button to start configuring. Change parameter values with ▲/+ or ▼/- buttons, and press ↵ button to apply the changes.</p> <p>Press ↵ button again to save the settings you’ve made to the Task.</p>	  
Insert/Delete Tasks	<p>You can also insert or delete Tasks.</p> <p>To add a new task to the current Run, choose “insert” from “Run List” menu, and press ↵ button. A new task with default parameters will be added to that Run.</p> <p>To remove an existing task of the current Run, choose “delete” from “Run List” menu, and press ↵ button. The existing task you chose will be deleted.</p> <p>Each “Run” can contain up to 4 Tasks, while each Task is an independent test that can contain different test parameters.</p>	 
Running/Pausing Tests	<p>To perform tests, press ▶ Run 1~3 button. All tasks stored in that Run will run by their orders. Pass/Fail LED will be on according to the test result.</p> <p>To pause all tests, press Pause button.</p>	 

Test Log Management

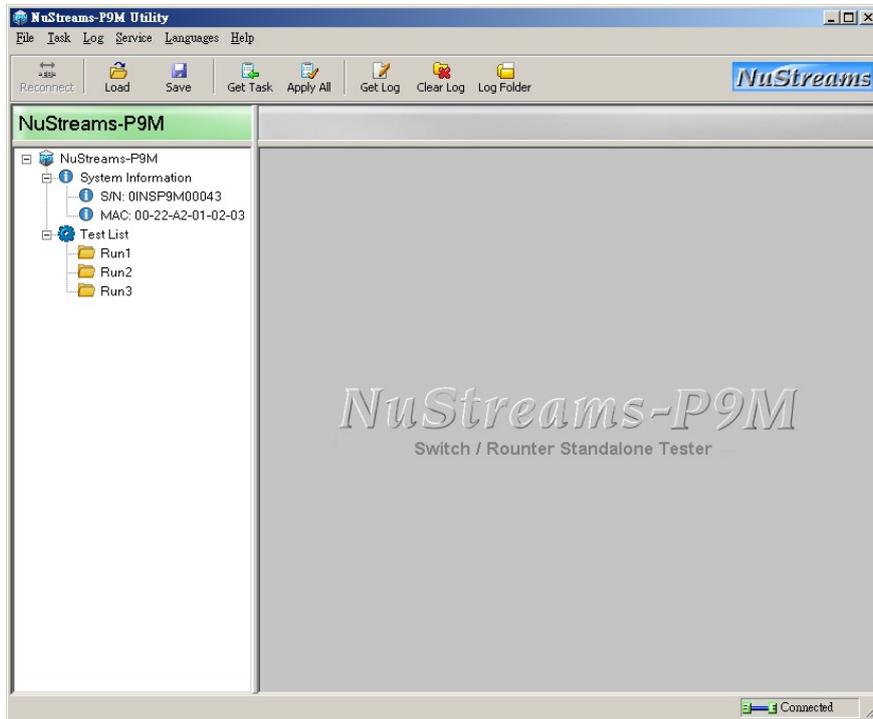
Function	Control Button Action	LCD Display
Entering Test Log Menu	Move the > cursor to " Test Log ", and press  button.	<pre> Test Setting >Test Log System Setting System Information </pre>
View Log	Choose " View Log " from " Test Log " menu list, and press  button.	<pre> >View Log Delete Log Store Log:On Full Warning:On </pre>
Delete Log	Choose " Delete Log " from " Test Log " menu list, and press  button. System will ask if you really want to delete all logs stored in NuStreams-P9M. Press  /+ to confirm, or  /- to cancel.	<pre> View Log >Delete Log Store Log:On Full Warning:On Are you sure to del? Yes(+)/No(-) </pre>
Log Auto-Save	Choose " Store Log " from " Test Log " menu list, and press  button. The select cursor ">" will be changed to "→" icon. Using  /+ or  /- buttons to set Log Auto-Save function On or Off, and press  button to apply the changes. System will save all test logs automatically if this function is ON.	<pre> View Log Delete Log >Store Log:On Full Warning:On →Store Log:On </pre>
Warning when Memory Full	Choose " Full Warning " from " Test Log " menu list, and press  button. The select cursor ">" will be changed to "→" icon. Using  /+ or  /- buttons to set Memory Full Warning function On or Off, and press  button to apply the changes. System will alert you when its log storing memory is about to full if this function is ON.	<pre> View Log Delete Log Store Log:On >Full Warning:On →Full Warning:On </pre>

System Configuration/Information

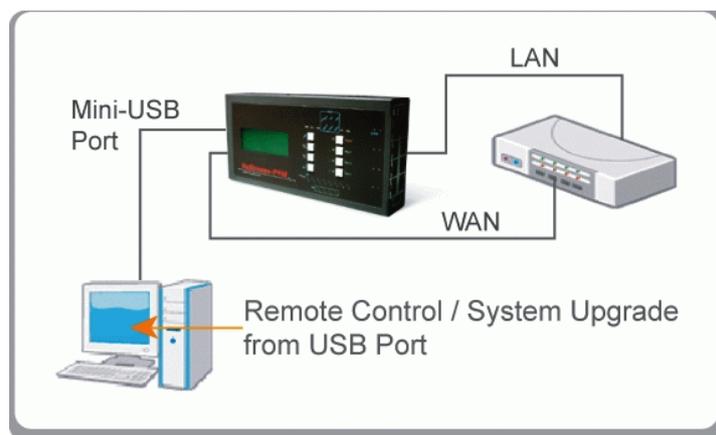
Function	Control Button Action	LCD Display
Entering System Setting Menu	Move the > cursor to “ System Setting ”, and press ↵ button. NuStreams-P9M will prompt you to input the system password. The default password is ▲/+ ▲/+ ▲/+ ▲/+ . Press ↵ button after inputting the password to enter the test setting menu.	
Buzzer	Choose “ Buzzer ” from “ System Setting ” menu list, and press ↵ button. The select cursor “>” will be changed to “→” icon. Using ▲/+ or ▼/- buttons to set Buzzer function On or Off, and press ↵ button to apply the changes. System will make a buzz sound whenever you press a button if this function is ON.	
Password On/Off	Choose “ Password ” from “ System Setting ” menu list, and press ↵ button. You can set the Password function On/Off by selecting Password: On/Off . Using ▲/+ or ▼/- buttons to set Password function On or Off.	
Setting New Password	Choose “ Password ” from “ System Setting ” menu list, and press ↵ button. You can change system password (Default Password: ▲/+ ▲/+ ▲/+ ▲/+) under Setting Password menu. Password is a set of 4-button combination using ▲/+ , ▼/- , ▶Run1 , ▶Run2 , and ▶Run3 buttons. Please input your old password under “ ORG: “ , and input your new password under “ New: “ .	
System Date/Time	Choose “ Date/Time ” from “ System Setting ” menu list, and press ↵ button. You can adjust system date and time by pressing ▲/+ or ▼/- buttons, and ↵ button to apply the changes you’ve made.	
Load System Default Value	Choose “ Load Default ” from “ System Setting ” menu list, and press ↵ button. System will ask if you really want to set all system settings to default. Press ▲/+ to confirm, or ▼/- to cancel.	

4. NuStreams-P9M Utility

NuStreams-P9M comes with GUI (Graphic User Interface) configuration utility software that runs under Microsoft Windows environment.



By connecting NuStreams-P9M with PC via its Management Port (located at the left panel of NuStreams-P9M) as shown in the figure down below, users can configure test parameters, download testing logs and upgrade firmware.



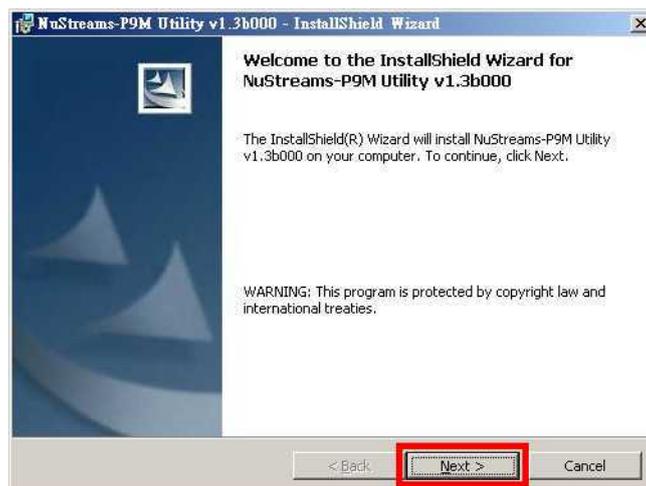
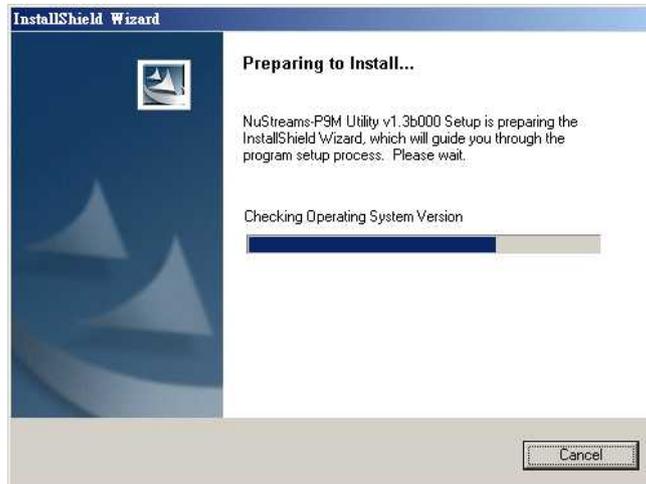
All test parameters can be configured with NuStreams-P9M utility software, including all the configurations that can be set by buttons located on NuStreams-P9M's panel.

However, NuStreams-P9M utility software and its hardware driver must be installed on PC first. NuStreams-P9M's driver will be installed automatically while installing NuStreams-P9M utility software.

4.1. Installing NuStreams-P9M Utility Software

Please follow the steps down below to install NuStreams-P9M Utility Software:

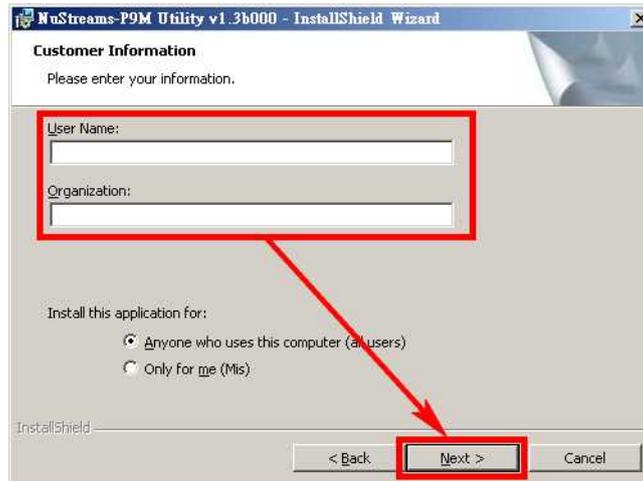
1. Double click NuStreams-P9M utility software install program. Click “**Next >**” to start utility software installation process. During the installation, you can click “**Cancel**” to cancel installing NuStreams-P9M utility software.



2. Choose “I accept the terms in the license agreement” and click “Next”.



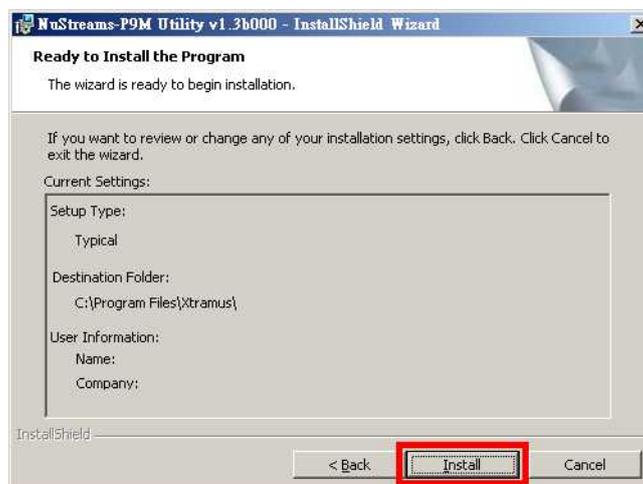
3. Input the User Name and the Organization (optional), and click **“Next”**

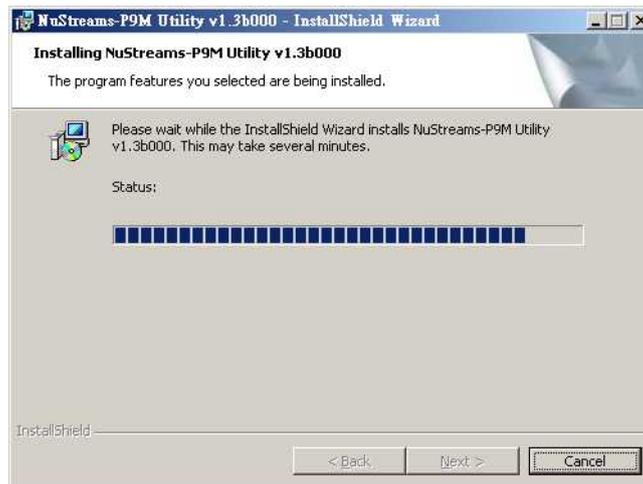


4. Choose which folder you would like to install NuStreams-P9M utility software by clicking **“Change”**, and then click **“Next”**.

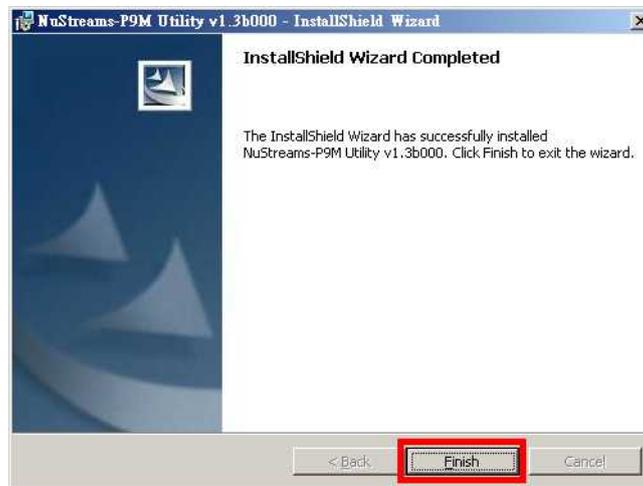


5. Click **“Install”** to start the installation.



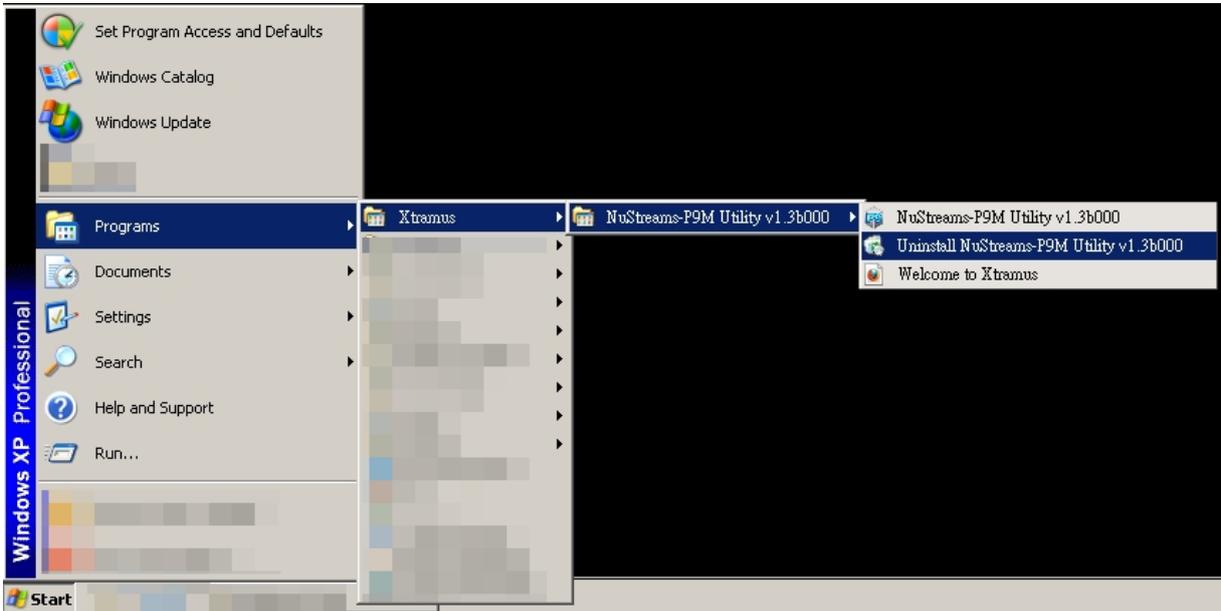


6. NuStreams-P9M utility software installation complete. Click **“Finish”** to close the InstallShield Wizard.



4.2. Uninstalling NuStreams-P9M Utility Software

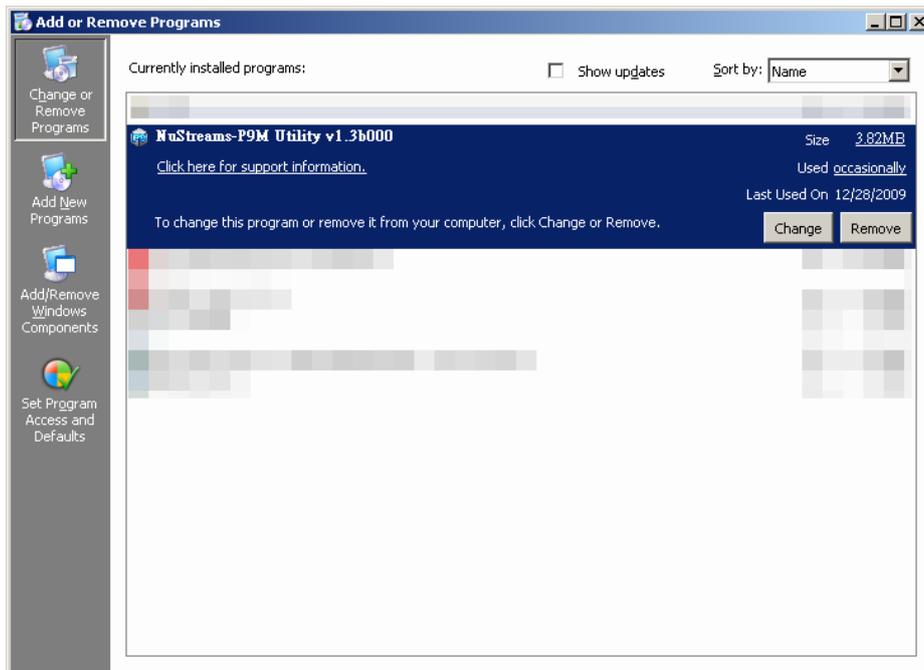
To uninstall NuStreams-P9M Utility Software, please click Start → Programs → NuStreams → APMP4 → Uninstall APMP4



You could remove NuStreams-P9M Utility Software via “Add or Remove Programs” as well.



Add or Remove Programs



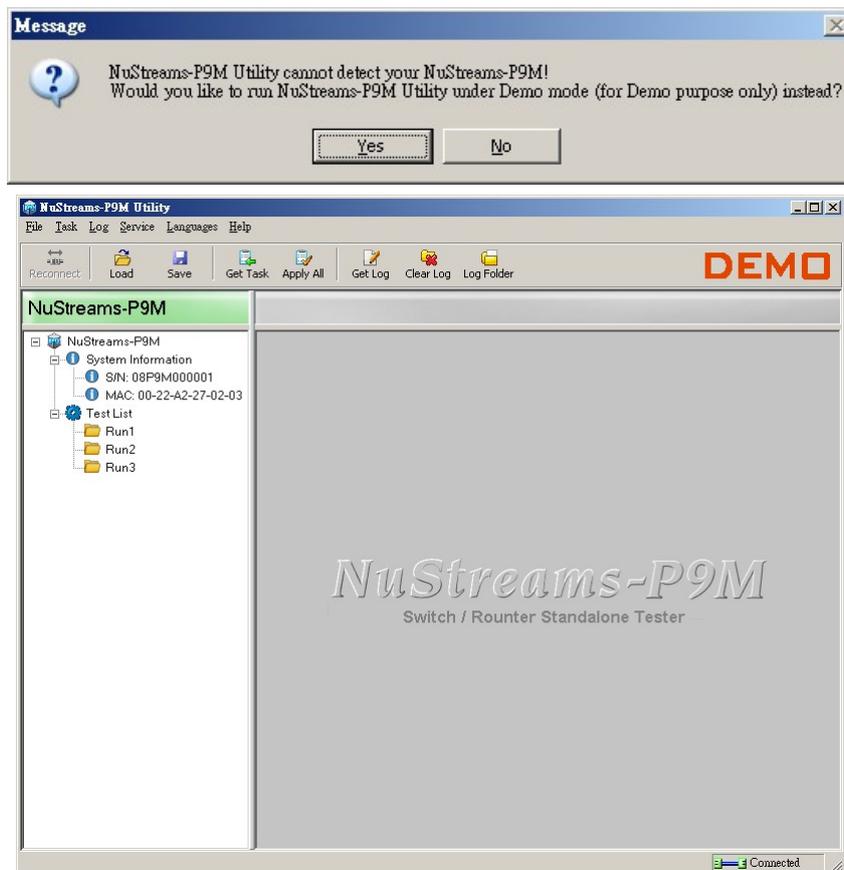
4.3. NuStreams-P9M Utility Demo Mode



After installing NuStreams-P9M utility software properly, an icon will appear on your desktop. You can double-click this icon to run NuStreams-P9M utility software.

However, for NuStreams-P9M utility software to work properly, your PC must be connected to NuStreams-P9M via a Mini-USB cable first.

You can still run NuStreams-P9M utility software without having NuStreams-P9M connected to your PC under **Demo Mode**.

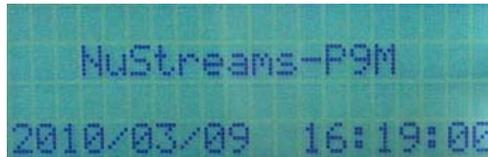


All NuStreams-P9M utility software's functions can be viewed and demonstrated. However, NuStreams-P9M Demo Mode is for demo purpose only and can't be used for Broadband Router/Switch tests.

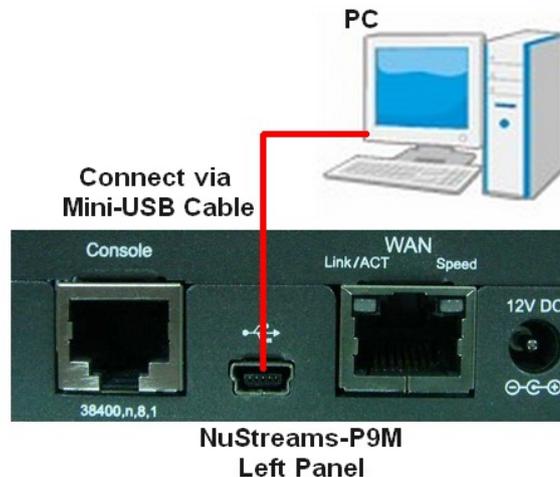
4.4. Connecting NuStreams-P9M to PC

As mentioned in the sections above, for NuStreams-P9M utility software to work properly, your PC must be connected to NuStreams-P9M via a Mini-USB cable first. Please follow the steps down below to make sure that your NuStreams-P9M is properly connected to your PC.

1. Before connecting NuStreams-P9M to your PC, please be sure that NuStreams-P9M is ready and its LCD screen is shown as the picture down below.



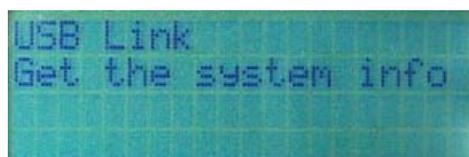
2. Connect your PC to NuStreams-P9M's mini-USB port located on its left panel via a Mini-USB cable as shown in the figure down below.



3. If NuStreams-P9M and your PC are connected properly, a “Safely Remove Hardware” icon  will show up in the button-right of your desktop. Also, a “USB Link” message will be shown on NUStreams-P9M's LCD screen as down below.

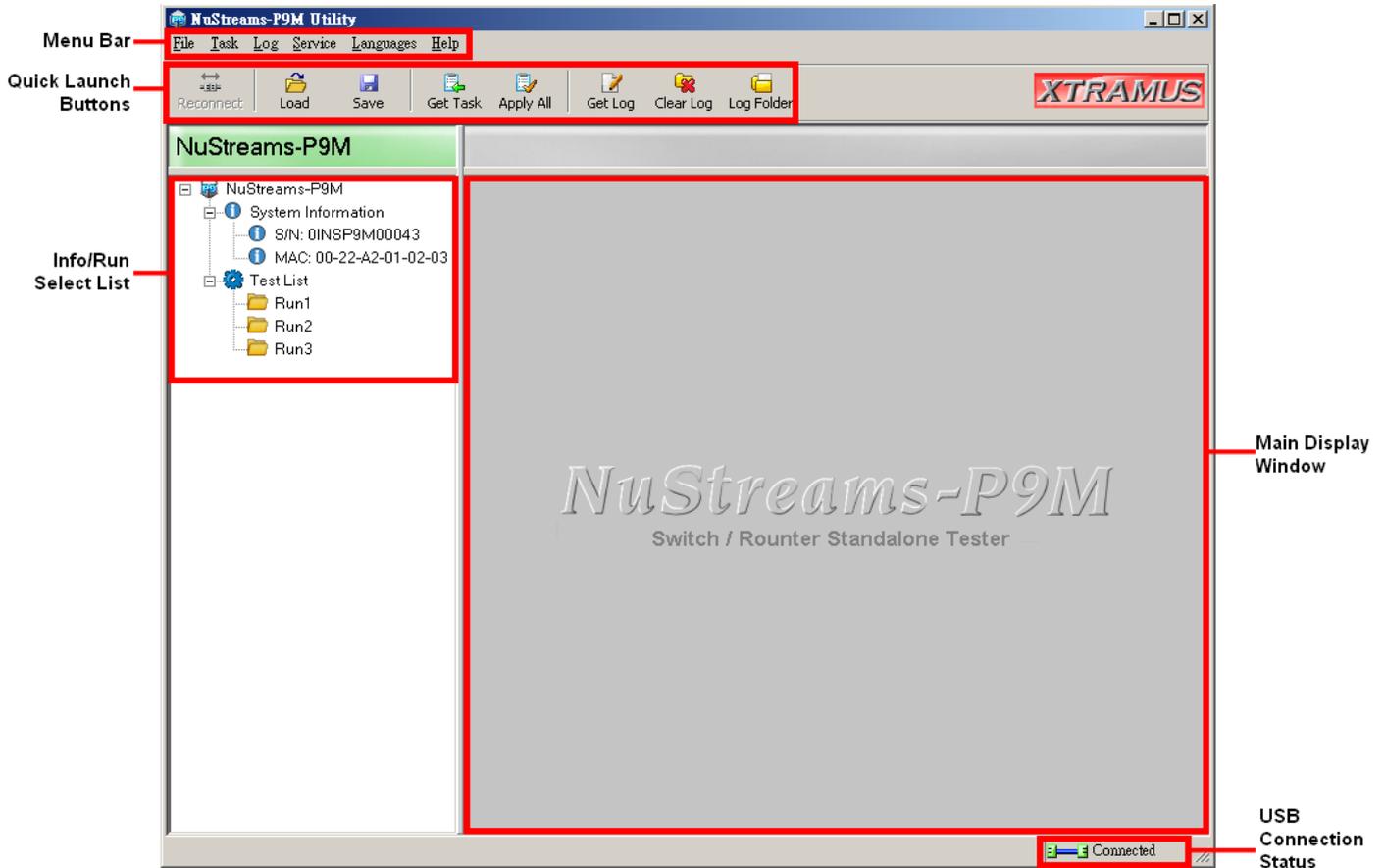


A “**Get the system info**” message will be shown on LCD if NuStreams-P9M utility software is running.



4.5. NuStreams-P9M Utility Functions

4.5.1. NuStreams-P9M Utility Main Window Overview



Function Descriptions

Menu Bar	The Menu Bar allows you to access configuration files from your PC/NuStreams-P9M, manage test logs, and perform system maintenance.
Quick Launch Buttons	With a simple click of these Quick Launch Buttons, you can access configuration files from your PC/NuStreams-P9M and managing test logs.
Info/Run Select List	This section contains a selectable list of NuStreams-P9M's detailed system information and Test List.
Main Display Window	This section displays detailed system information or all test parameters you can configure for each Task in Run 1~3.
USB Connection Status	This icon shows the connection status between your PC and NuStreams-P9M.

4.5.2. Menu Bar

File Task Log Service Languages Help

NuStreams-P9M Menu Bar includes configuration options such as **File**, **Task**, **Log**, **Service**, **Language**, and **Help**.

File

Load Default Config. Profile The system will load the default test settings for Run 1~3. All test parameters in Run 1~3 will be set to default value. However, loading test settings won't be saved to NuStreams-P9M until applied.

Load Config. Profile From You can choose to load test settings either from **Existing Files**, or **Pre-defined Files for Network Products**.

- **Existing Files:** NuStreams-P9M utility will load test settings which you saved previously.
- **Pre-defined Files for Network Products:** NuStreams-P9M utility will load test setting samples for network products pre-defined by Xtramus. All these test settings are stored in "**Default Config Profile**" folder located under NuStreams-P9M utility software installation folder. These test settings are named by the format of **A_B_C_D_E_F**, which means:
 - **A:** Name of the testing device. In here, it's NuStreams-P9M
 - **B:** Type of the DUT (Chip or Model)
 - **C:** Name of the Manufacturer
 - **D:** DUT Model Name
 - **E:** DUT Version
 - **F:** Testing WAN type.

Please note that loading test settings won't be saved to NuStreams-P9M until applied.

Save Configuration You can save all parameter changes through Run 1~3 you made to your PC. If you haven't saved the changes previously, a **Select Run** window will pop up and ask you which test setting (Run) you would like to save.



Save As... The "**Save As...**" function is similar to the "**Save Configuration**". The only difference is that you can save test settings (Run) with different file names.

Exit Exit NuStreams-P9M utility software.

Task

Get Task This function allows NuStreams-P9M utility software to access all test settings (Run) from NuStreams-P9M and show those settings in both **Info/Run Select List** and **Main Display Window**.

Add Task As mentioned in sections above, each Run can hold up to **4** different Tasks. You can add new Tasks to each Run with this function. To add a new Task, click the Run you would like to add the new Task to from **Info/Run Select List**, then click **Task** → **Add Task** on the **Menu Bar**.

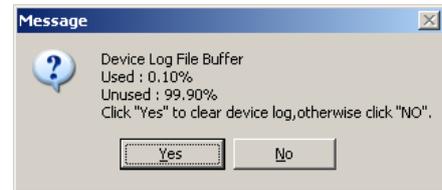
Delete Task You can delete an existing Task with this function. To delete an existing task, click the Task you would like to delete from **Info/Run Select List**, then click **Task** → **Delete Task** on the **Menu Bar**.

Apply All Apply and save all changes you've made to NuStreams-P9M.

*** Please note that the connection (of mini-USB cable) between PC and NuStreams- P9M must be connected at all time while getting/setting tasks.**

Log

Get Device Log Accessing test logs from NuStreams-P9M memory and save these logs to a specific folder on your PC. After retrieving test logs from NuStreams-P9M, the log folder will pop up. Also, a message window contains detail information about system log file memory buffer will pop up. Click **YES** if you want to clear all logs stored in NuStreams -P9M or click **NO** to cancel.



Clear Device Log Clear all test logs stored in NuStreams-P9M's memory.

Log Saving Settings Log saving settings can be configured here:

- **Save Log to Device:** If this function is **ON**, NuStreams-P9M will save all test logs in its log file memory buffer.
- **Warning when Log storage space is full:** System will issue a warning if the log file memory buffer is about to full.



Show Log Folder Show the file folder where test logs are stored.

Set Log Folder Change where you would like to save test logs retrieved from NuStreams-P9M. You can create new folders for log-saving as well.

Service

System Setting If NuStreams- P9M’s password has been changed, you could reset it to default (▲/+ ▲/+ ▲/+ ▲/+) by “**Clear Device Password**” function.

A “**Clear Device Password**” window will pop up when you choose this function from **Menu Bar**. Input “**admin**” in the “**Password**” column and click “**OK**”. NuStreams-P9M’s password will be cleared and set to the default ▲/+ ▲/+ ▲/+.



You can change utility software’s password (default: **admin**) by click the “**Modify**” button on “**Clear Device Password**” window. A “**Modify Password**” window will pop up.

Input NuStreams-P9M utility’s old password under “**Old Password**” column, and type in the new password under both “**New Password**” and “**Confirm Password**” columns.



If you forget NuStreams-P9M utility’s password, please uninstall NuStreams-P9M utility, and re-install it again. NuStreams-P9M utility’s password will be set to “**admin**” after re-installation.

System Upgrade You can upgrade **NuStreams-P9M’s Firmware, FPGA, and NuPAD’s Firmware** with this function. Please note that if you upgrade NuStreams-P9M’s firmware, all settings will be reset to default, and all test logs stored in NuStreams-P9M’s memory will be deleted as well.

Languages

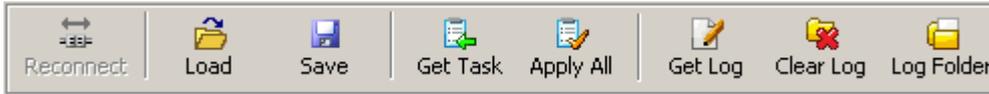
English NuStreams-P9M utility has **2** different languages for its UI available. You can set the language of UI to either **English** or **Simplified Chinese**.

Help

Help An “**About**” window will pop up and show detailed system information.

Xtramus Web Access Xtramus Website (www.xtramus.com).

4.5.3. Quick Launch Buttons



These Quick Launch Buttons allow you to reconnect NuStreams-P9M, access test setting files from your PC or NuStreams-P9M, or managing test log files.

Reconnect

Reconnect



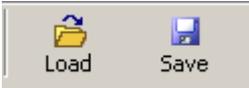
If the USB connection between your PC and NuStreams-P9M is down, a “**Disconnected**” icon  Disconnected will be shown in “**USB Connection Status**”.

Press **Reconnect** button  to re-establish the connection between your PC and NuStreams-P9M. If the connection has been established successfully, a message window will pop up, and the “**USB Connection Status**” will be shown as “**Connected**”  Connected.



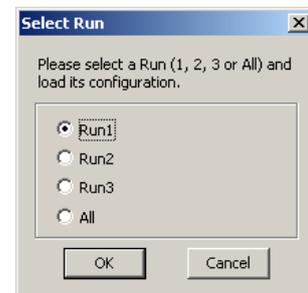
Load & Save

Load & Save



The **Load** and **Save** buttons allow you to load or save test settings from/to your PC, identical to “**Load Config. Profile From Existing Files**” and “**Save Configuration**” functions available in the **Menu Bar** mentioned in **4.5.2. Menu Bar**.

To load test setting files stored in your PC, click “**Load**” button, select which Run (or **All 3** Runs) to apply the settings, and choose the path which the test setting file are located.



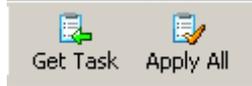
To save test setting on your PC, click “**Save**” button, select which Run (or **All 3** Runs) to save, and choose where you would like to save the test settings.



Test setting files for each Run (Run 1~3) are named in the format of “***.run**”, while test setting files for all runs are named in the format of “***.all**”.

Get Task/Apply All

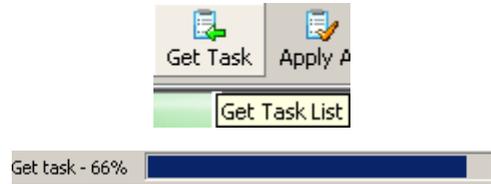
Get Task/Apply All



By clicking **Get Task** button, you can load test settings from NuStreams-P9M, display all settings in **Info/Run Select List** and **Main Display Window**.

On the other hand, **Apply All** button allows you to apply all the changes you've made to all Runs and save these settings to your NuStreams-P9M.

To load test settings from NuStreams-P9M, click "**Get Task**" button. Settings will be displayed in **Info/Run Select List** and **Main Display Window**.



To apply all the changes you've made with the utility software and save these settings to NuStreams-P9M, click "**Apply All**".



Please note that the connection (of mini-USB cable) between PC and NuStreams-P9M must be connected **at all time** while getting/setting tasks.

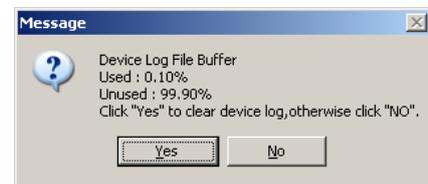
Get Log/Clear Log/Log Folder

Get Log/Clear Log

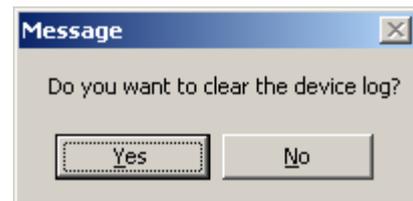


Get Log and **Clear Log** buttons allow you to obtain test logs from NuStreams-P9M or clear all test logs stored in NuStreams-P9M, just like the "**Get Device Log**" and "**Clear Device Log**" on the **Menu Bar**.

To get all test logs from NuStreams-P9M, click "**Get Log**" button. A window with NuStreams-P9M log memory space and log folder screen will pop up. Click **Yes** to clear all test logs in NuStreams-P9M, or click **No** to leave these test logs be.



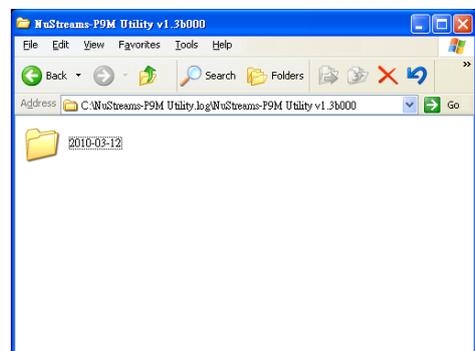
To clear all test logs stored in NuStreams-P9M's log memory, click "**Clear Log**" button, and click **Yes**.



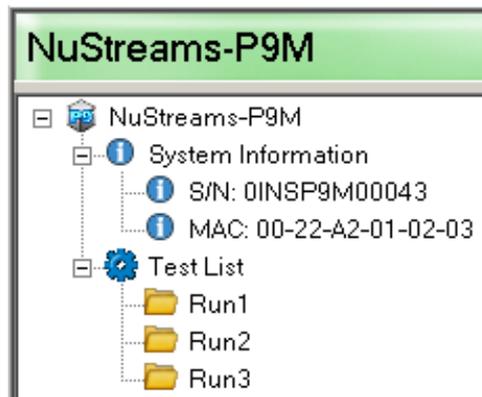
Log Folder



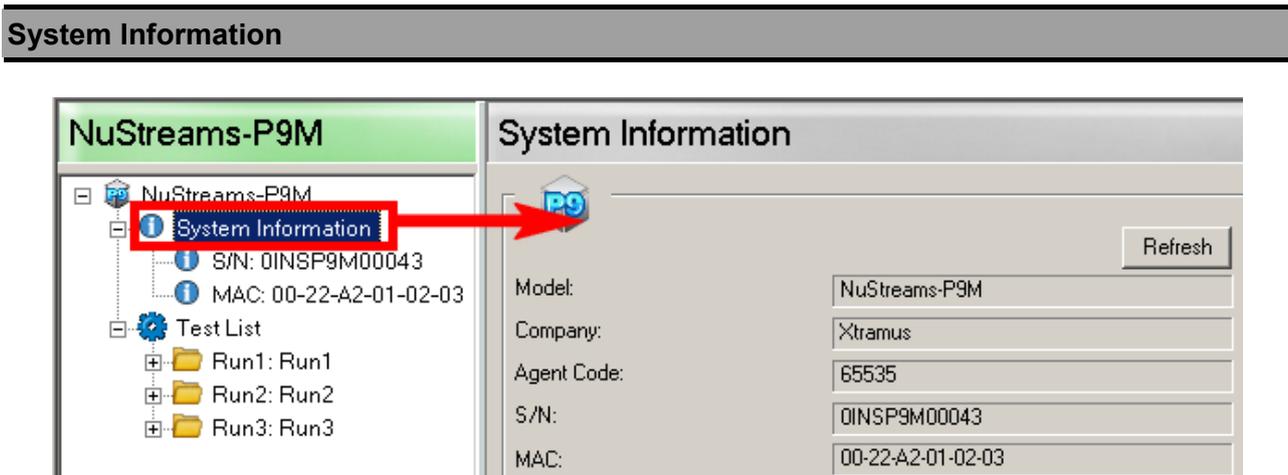
Click "**Log Folder**" button to open the folder where all test logs are stored on your PC. All log folders are named with the test date, and all logs are named with the test date and time.



4.5.4. Info/Run Select List



The **Info/Run Select List** contains a list of selectable options. When selected, the **Main Display Window** will show the corresponding information/Run setting.

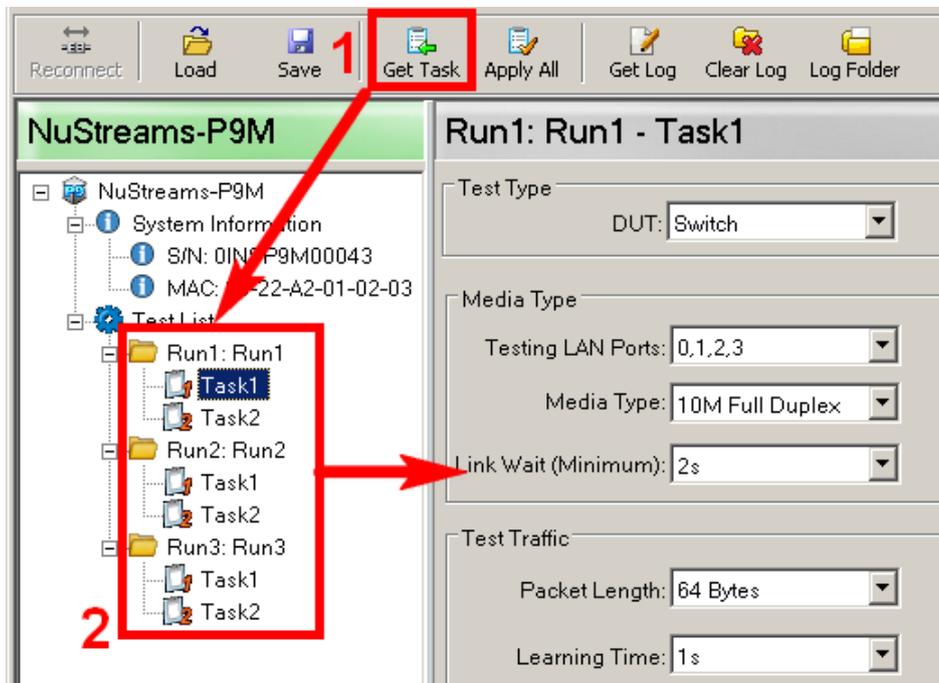


To show NuStreams-P9M's detailed system information, click "**System Information**" on the **Info/Run Select List**. A detailed System Information will display on the **Main Display Window** located in the **right side** of the **Info/Run Select List**.

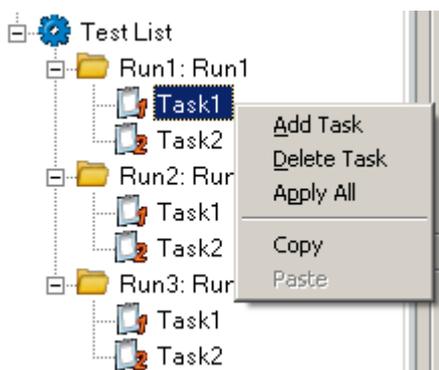
Test List

To access test settings stored in NuStreams-P9M, please click **Get Task** button located on the **Quick Launch Buttons** section so the utility software can access and display all Runs stored in NuStreams-P9M.

Please note that the connection (of mini-USB cable) between PC and NuStreams- P9M must be connected **at all time** while getting/setting tasks.

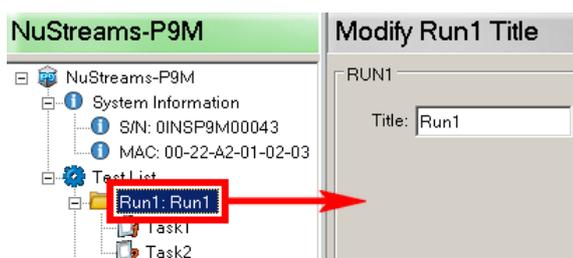


All test settings stored in NuStreams-P9M will be displayed under **Test List**. All parameters in each Task can be viewed or changed by the detailed configuration window displayed on the **Main Display Window**.



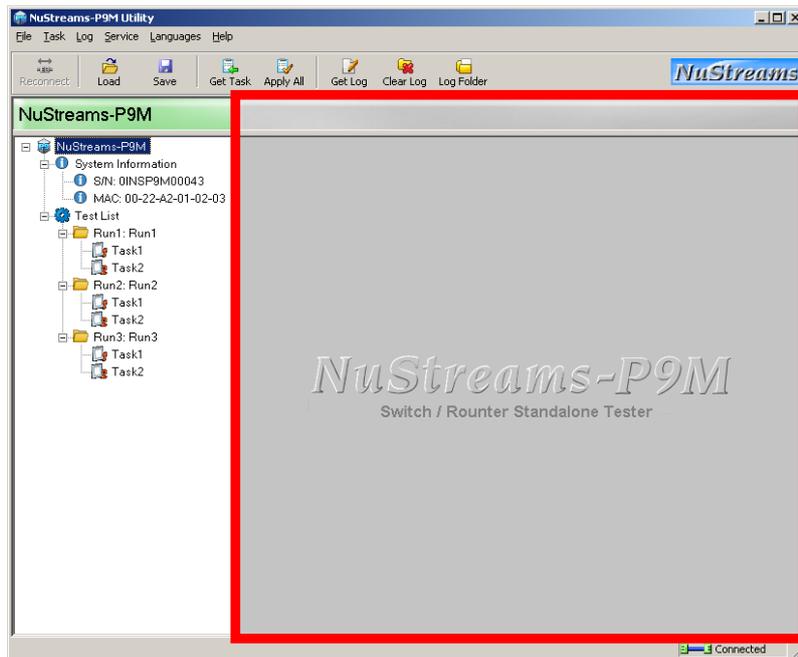
By right clicking a Task on **Test List**, you can **Add Task**, **Delete Task**, **Apply All**, **Copy**, or **Paste** Tasks.

- **Add Task:** Add a Task with default test setting values to the current Run. Up to **4** Tasks can be added in one Run.
- **Delete Task:** Delete the current Task.
- **Apply All:** Apply all test settings and save these settings to NuStreams-P9M.
- **Copy:** Copy current Task.
- **Paste:** Paste the Task you copied to the current Run.



Also, by clicking **Run 1~3** listed on **Test List**, you can change the title of each Run on the **Main Display Window**.

4.5.5. Main Display Window



The **Main Display Window** displays NuStreams-P9M’s detailed **System Information** and **Test List** which contains all test parameters you can configure for each Task in Run 1~3.

To display **System Information** and **Test List** on **Main Display Window**, please refer to “**4.5.4. Info/Run Select List**”.

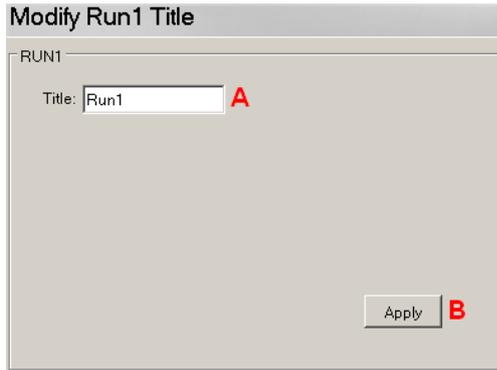
View System Information



The **System Information** displayed on **Main Display Window** shows NuStreams-P9M and NuPAD’s detail information and status.

- **Refresh:** Update the latest system information and status, press this button.

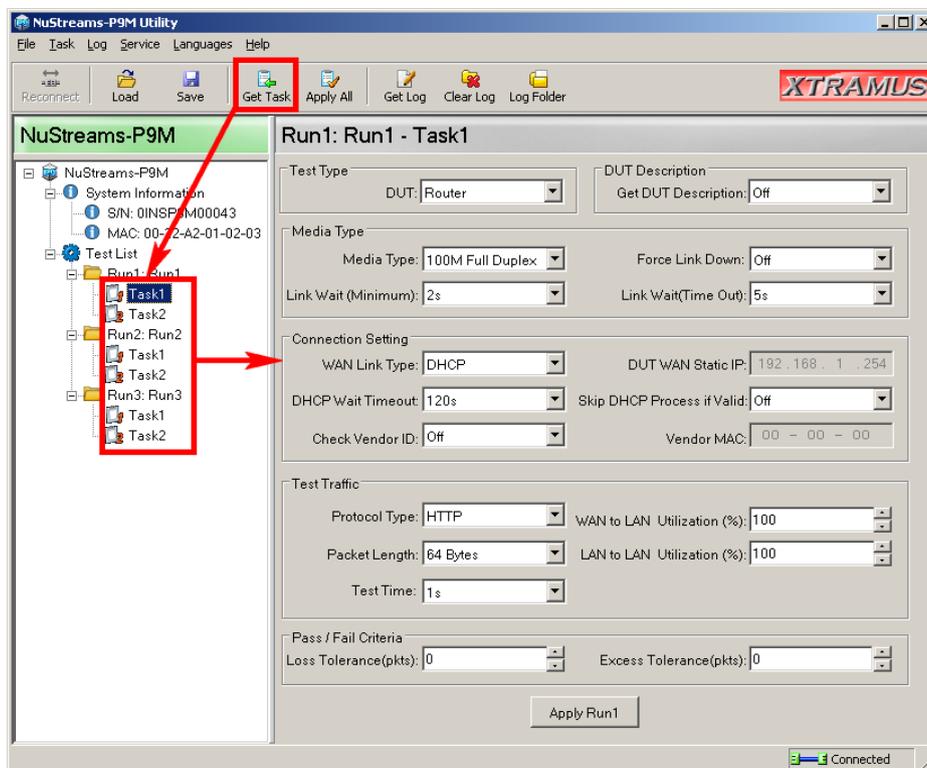
Modifying Run Title



You can modify titles for all Runs listed on **Info/Run Select List**.

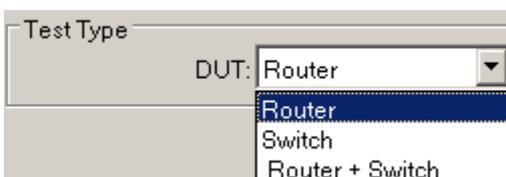
- **A:** Run Title. You can modify title names here.
- **B:** Click “**Apply**” to apply all the changes you’ve made.

Start Configuring/Viewing Tasks



After acquiring all the Tasks stored in NuStreams-P9M (for more detail, please refer to **4.5.3. Quick Launch Buttons**), click the specific Task you would like to configure on the **Info/Run Select List** to configure/view all parameters of that Task in **Main Display Window**.

Before configuring test parameters in each Task, please select the **DUT Test Type** first. The test parameters listed in the **Main Display Window** will change according to the **DUT Test Type** you chose.



NuStreams-P9M utility has **3** different test types:

- **Router:** Testing Broadband Router including its WAN abilities.
- **Switch:** Testing Switch and its switch functions.
- **Router + Switch:** Testing Broadband Router as well as its switch functions.

DUT: Router

Test Type DUT: Router		DUT Description Get DUT Description: Off	
Media Type Media Type: 100M Full Duplex		Force Link Down: Off	
Link Wait (Minimum): 2s		Link Wait (Time Out): 5s	
Connection Setting			
WAN Link Type: DHCP		DUT WAN Static IP: 192.168.1.254	
DHCP Wait Timeout: 120s		Skip DHCP Process if Valid: Off	
Check Vendor ID: Off		Vendor MAC: 00 - 00 - 00	
Test Traffic			
Protocol Type: HTTP		WAN to LAN Utilization (%): 100	
Packet Length: 64 Bytes		LAN to LAN Utilization (%): 100	
Test Time: 1s			
Pass / Fail Criteria			
Loss Tolerance (pkts): 0		Excess Tolerance (pkts): 0	
Apply Run1			

Test Type/DUT Description

- **DUT:** Choose “Router” from this scroll-down menu to start configuring router tests.
- **Get DUT Description:** Enable this function to acquire DUT information during test and output it to test logs.

Media Type

- **Media Type:** Two rates of connection speed are available: **10M Full Duplex** and **100M Full Duplex**.
- **Link Wait (Minimum):** NuStreams-P9M will attempt to establish connection with the DUT and wait for the minimum time (seconds). NuStreams-P9M will keep waiting until the minimum time is met even the DUT has already responded.
- **Force Link Down:** The connection link between DUT and NuStreams-P9M will be forced to terminate when this function is enabled.
- **Link Wait (Time Out):** NuStreams-P9M will attempt to establish connection with the DUT and wait for a period of time until time out (second), and NuStreams-P9M will not attempt to establish connection anymore.

Connection Setting

- **WAN Link Type:** Choose the WAN connection type for DUT testing. Two WAN Link Types are available: **DHCP** and **Static IP**. The **WAN Link Type** set here must be the same with the setting of the DUT.
- **DHCP Wait Timeout:** This menu sets the duration of time for attempting to establish connection with DHCP server.
- **Check Vender ID:** Enable this function to check DUTs’ MAC address and see if they match DUT vender’s designated MAC address.
- **DUT WAN Static IP:** If the **WAN Link Type** is set as **Static IP**, please input the static IP address you set in the DUT here.
- **Skip DHCP Process if Valid:** Disable or enable DHCP server.
- **Vendor MAC:** If **Check Vender ID** is enabled, please input the vender’s designated MAC address here for comparisons.

Test Traffic

- **Protocol Type:** You can set the protocol used (**HTTP**, **UDP**, or **FTP**) for DUT tests.
- **Packet Length:** Length of testing packets.
- **Test Utilization (%):** Utilization is the traffic flow ratio of network, presented in percentage (**1~99**).
- **Test Time:** The duration of time for DUT test.

Pass/Fail Criteria

- **Loss Tolerance (pkts):** The acceptable number of **lost packets** in data transmitting during tests (**0~9999**).
- **Excess Tolerance (pkts):** The acceptable number of **excess packets** in data transmitting during tests (**0~9999**).

Apply Run

- Click this button to apply all the settings you’ve made and save the settings to NuStreams-P9M.

DUT: Switch

Test Type	
DUT: <input type="text" value="Switch"/>	
Media Type	
Testing LAN Ports: <input type="text" value="0,1,2,3"/>	
Media Type: <input type="text" value="10M Full Duplex"/>	
Link Wait (Minimum): <input type="text" value="2s"/>	Link Wait(Time Out): <input type="text" value="5s"/>
Test Traffic	
Packet Length: <input type="text" value="64 Bytes"/>	Test Utilization (%): <input type="text" value="100"/>
Learning Time: <input type="text" value="1s"/>	Test Time: <input type="text" value="1s"/>
Pass / Fail Criteria	
Loss Tolerance(pkts): <input type="text" value="0"/>	Excess Tolerance(pkts): <input type="text" value="0"/>
<input type="button" value="Apply Run1"/>	

Test Type/DUT Description

- **DUT:** Choose “Switch” from this scroll-down menu to start configuring switch tests.

Media Type

- **Testing LAN Ports:** Up to 8 ports (LAN Port 0~7) can be tested at the same time. Please connect the DUT with NuStreams-P9M’s LAN Ports with Cat-5 cables according to the **Testing LAN Ports** you set here.
- **Link Wait (Minimum):** NuStreams-P9M will attempt to establish connection with the DUT and wait for the minimum time (seconds). NuStreams-P9M will keep waiting until the minimum time is met even the DUT has already responded.
- **Media Type:** Two rates of connection speed are available: **10M/100 Full/Half Duplex**.
- **Link Wait (Time Out):** NuStreams-P9M will attempt to establish connection with the DUT and wait for a period of time until time out (second), and NuStreams-P9M will not attempt to establish connection anymore.

Test Traffic

- **Packet Length:** The length of test packets (from **64~1600 Bytes**) transmitting by NuStreams-P9M.
- **Learning Time:** NuStreams-P9M will start sending send learning packets to the DUT. The DUT will record the MAC addresses of these packets, and learn the routing to NuStreams-P9M.
- **Test Utilization (%):** Utilization is the traffic flow ratio of network, presented in percentage (**1~99**).
- **Test Time:** The duration of time for DUT test.

Pass/Fail Criteria

- **Loss Tolerance (pkts):** The acceptable number of **lost packets** in data transmitting during tests (**0~9999**).
- **Excess Tolerance (pkts):** The acceptable number of **excess packets** in data transmitting during tests (**0~9999**).

Apply Run

- Click this button to apply all the settings you’ve made and save the settings to NuStreams-P9M.

DUT: Router + Switch

Test Type DUT: Router + Switch		DUT Description Get DUT Description: Off	
Media Type Media Type: 100M Full Duplex		Force Link Down: Off	
Link Wait (Minimum): 2s		Link Wait (Time Out): 5s	
Testing LAN Ports: 1,2,3			
Connection Setting			
WAN Link Type: DHCP		DUT WAN Static IP: 192.168.1.254	
DHCP Wait Timeout: 120s		Skip DHCP Process if Valid: Off	
Check Vendor ID: Off		Vendor MAC: 00 - 00 - 00	
Test Traffic			
Protocol Type: HTTP		WAN to LAN Utilization (%): 100	
Packet Length: 64 Bytes		LAN to LAN Utilization (%): 100	
Learning Time: 1s		Switch Utilization (%): 100	
Test Time: 1s			
Pass / Fail Criteria			
Loss Tolerance(pkts): 0		Excess Tolerance(pkts): 0	
<input type="button" value="Apply Run1"/>			

Test Type

- **DUT:** Choose “Router + Switch” from this scroll-down menu to start configuring tests for both routers and switches.
- **Get DUT Description:** Enable this function to acquire DUT information during test and output it to test logs.

Media Type

- **Media Type:** Two rates of connection speed are available: **10M Full Duplex** and **100M Full Duplex**.
- **Force Link Down:** The connection link between DUT and NuStreams-P9M will be forced to terminate when this function is enabled.
- **Link Wait (Minimum):** NuStreams-P9M will attempt to establish connection with the DUT and wait for the minimum time (seconds). NuStreams-P9M will keep waiting until the minimum time is met even the DUT has already responded.
- **Link Wait (Time Out):** NuStreams-P9M will attempt to establish connection with the DUT and wait for a period of time until time out (second), and NuStreams-P9M will not attempt to establish connection anymore.
- **Testing LAN Ports:** Up to 8 ports (**LAN Port 0~7**) can be tested at the same time. Please connect the DUT with NuStreams-P9M’s LAN Ports with Cat-5 cables according to the **Testing LAN Ports** you set here.

Connection Setting

- **WAN Link Type:** Choose the WAN connection type for DUT testing. Two WAN Link Types are available: **DHCP** and **Static IP**. The **WAN Link Type** set here must be the same with the setting of the DUT.
- **DUT WAN Static IP:** If the **WAN Link Type** is set as **Static IP**, please input the static IP address you set in the DUT here.
- **DHCP Wait Timeout:** This menu sets the duration of time for attempting to establish connection with DHCP server.
- **Skip DHCP Process if Valid:** Disable or enable DHCP server.
- **Check Vender ID:** Enable this function to check DUTs’ MAC address and see if they match DUT vender’s designated MAC address.
- **Vendor MAC:** If **Check Vender ID** is enabled, please input the vender’s designated MAC address here for comparisons.

Test Traffic

- **Protocol Type:** You can set the protocol used (**HTTP**, **UDP**, or **FTP**) for DUT tests.
- **Packet Length:** The length of test packets (from **64~1600 Bytes**) transmitting by NuStreams-P9M.
- **Learning Time:** NuStreams-P9M will start sending learning packets to the DUT. The DUT will record the MAC addresses of these packets, and learn the routing to NuStreams-P9M.
- **Test Utilization (%):** Utilization is the traffic flow ratio of network, presented in percentage (**1~99**).
- **Test Time:** The duration of time for DUT test.

Pass/Fail Criteria

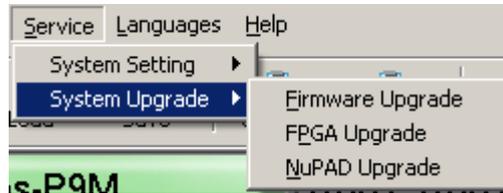
- **Loss Tolerance (pkts):** The acceptable number of **lost packets** in data transmitting during tests (**0~9999**).
- **Excess Tolerance (pkts):** The acceptable number of **excess packets** in data transmitting during tests (**0~9999**).

Apply Run

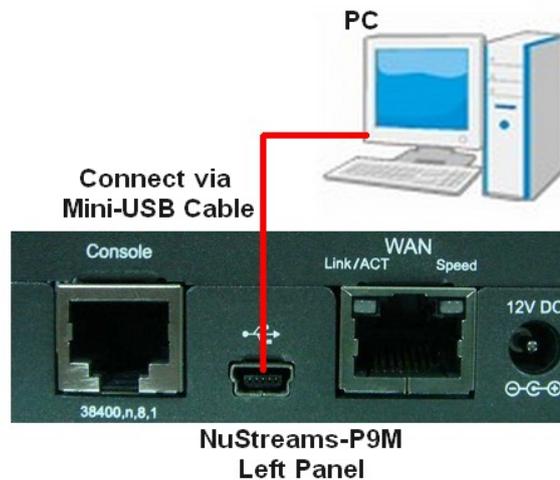
- Click this button to apply all the settings you've made and save the settings to NuStreams-P9M.

4.6. Firmware/FPGA/NuPAD Upgrade

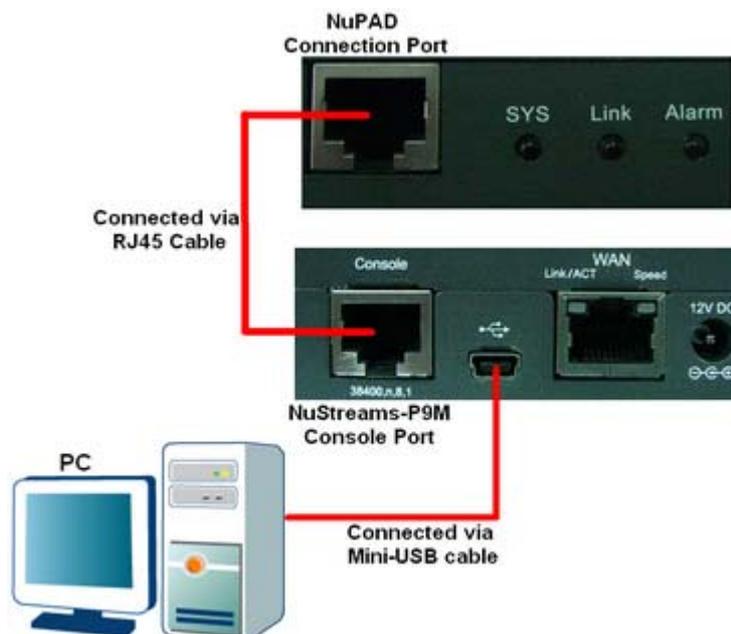
As mentioned above in “4.5.2. Menu Bar”, by clicking **Service** → **System Upgrade** on the **Menu Bar**, you can upgrade NuStreams-P9M’s firmware, FPGA, and NuPAD’s firmware via NuStreams-P9M utility.



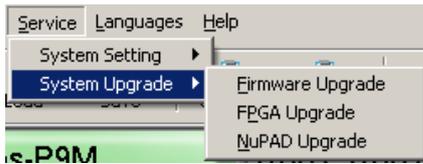
Before upgrading NuStreams-P9M firmware/FPGA, please be sure that NuStreams-P9M and your PC are connected via mini-USB cable all the time as shown in the figure down below.



When upgrading NuPAD firmware, please be sure that NuPAD is connected with NuStreams-P9M via RJ45 cable, and NuStreams-P9M is connected with you PC via mini-USB cable as shown in the figure down below.



Firmware/FPGA Upgrading

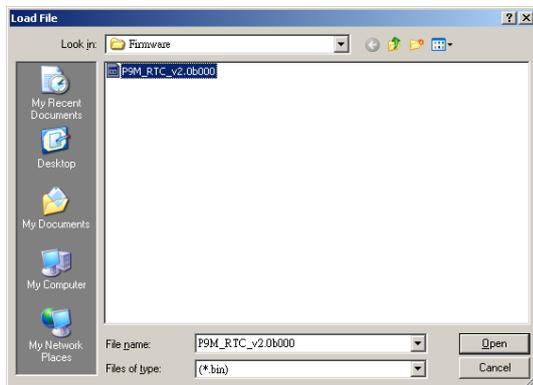


To start upgrading NuStreams-P9M firmware /FPGA , click **Service** → **System Upgrade** on the **Menu Bar**, and choose if you would like to upgrade NuStreams-P9M **firmware** or **FPGA**.

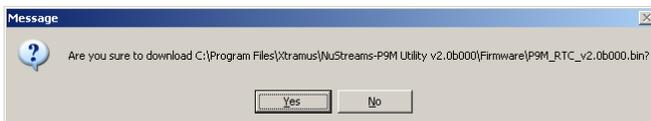


If you're upgrading NuStreams-P9M firmware, a message window will pop up, reminding you that all NuStreams-P9M's settings will be reset to default after firmware upgrading. Please click **Yes** to continue.

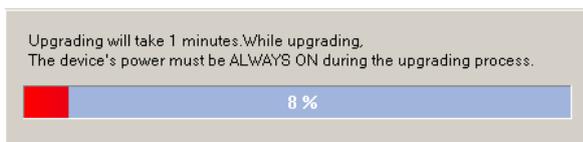
Also, please note that all test logs stored in NuStreams -P9M will be deleted after upgrading as well.



Select where NuStreams-P9M's firmware/FPGA file (in the format of "***.bin**") is stored in your PC, then click "**Open**".



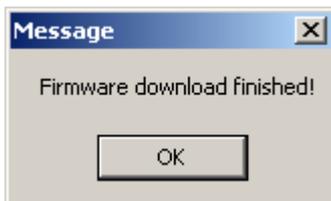
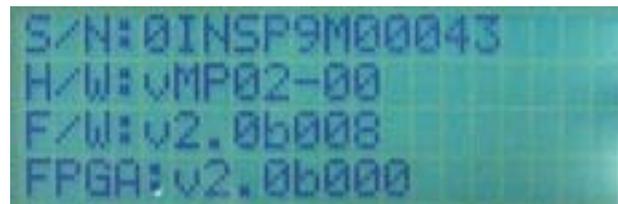
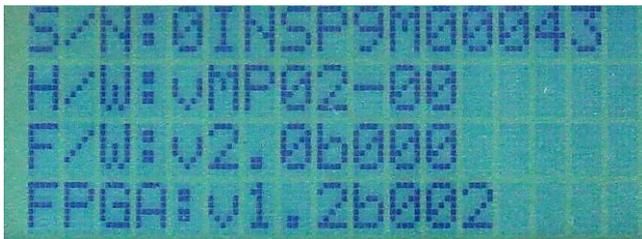
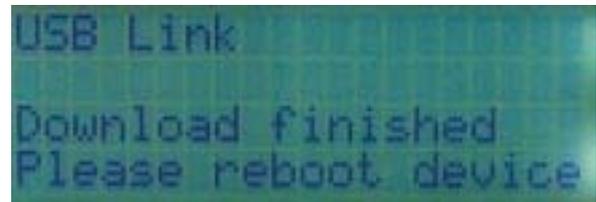
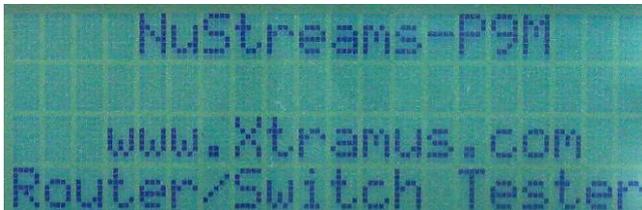
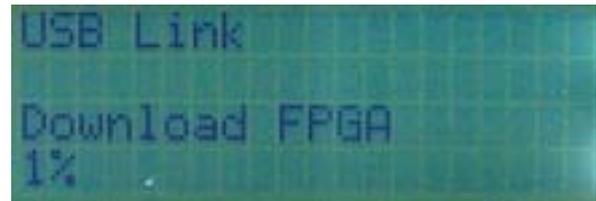
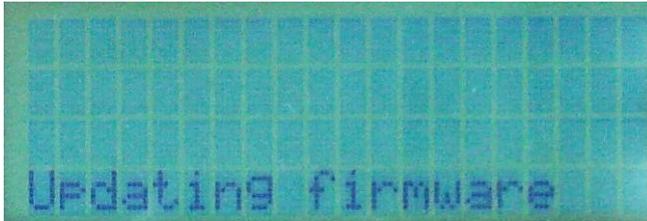
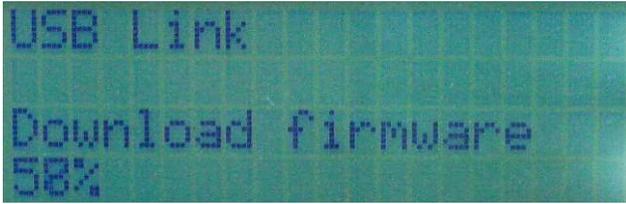
Click **Yes** to start upgrading firmware.



NuStreams-P9M utility will start uploading firmware from your PC to NuStreams-P9M.

It might take several minutes uploading firmware or FPGA. Please note that the connection between NuStreams-P9M and your PC shall remain connected at all time, and please be sure that the NuStreams-P9M and your PC's power remain ON during the process.

NuStreams-P9M's LCD will show the firmware/FPGA upgrading process as shown in the figures down below.

NuStreams-P9M Firmware Upgrading
FPGA Upgrading


Firmware/FPGA upgrading complete! Click **OK** to finish. You will have to click the **Reconnect** button

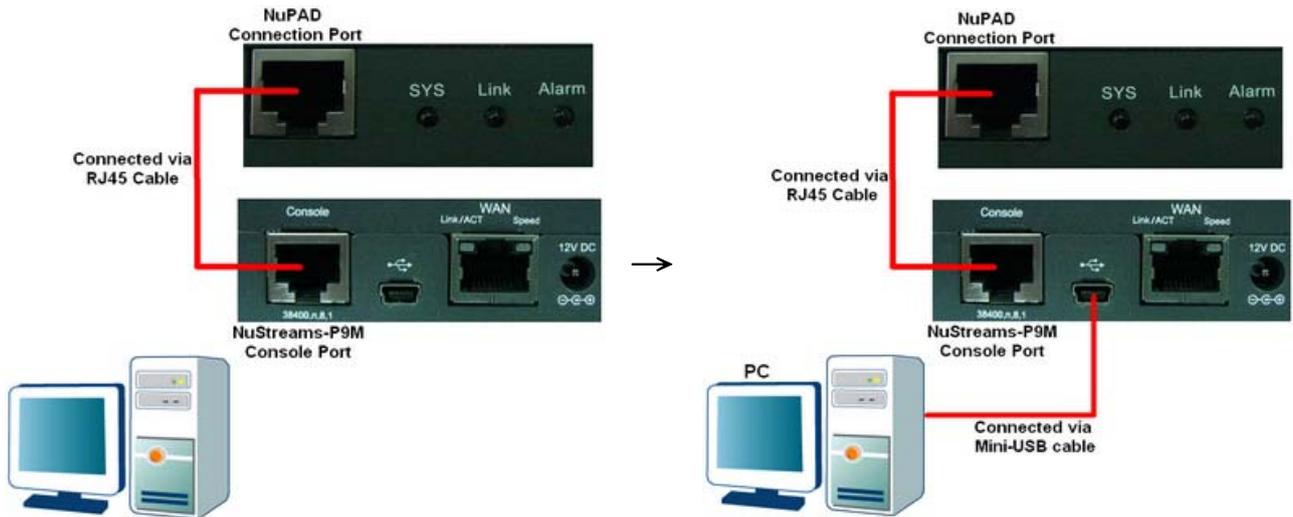


Reconnect on NuStreams-P9M's **Quick Launch Button** in order to re-establish the connection between your PC and NuStreams-P9M.

If you're upgrading FPGA, please reboot NuStreams-P9M by switching its power off, and turning it back on.

NuPAD Firmware Upgrading

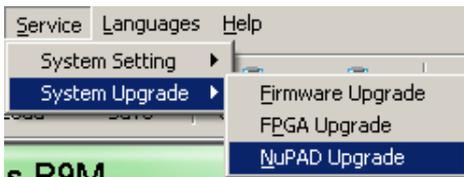
Before upgrading NuPAD's firmware, please connect NuPAD, NuStreams-P9M, and your PC according to the figures and descriptions down below:



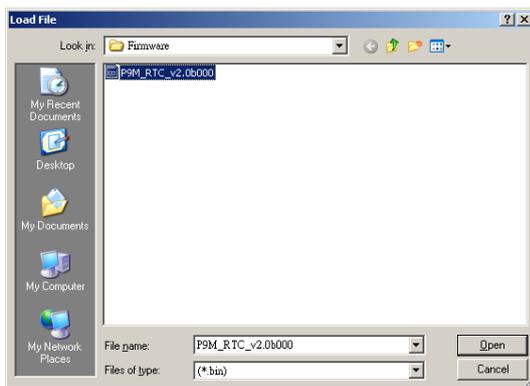
1. Connect NuPAD with NuStreams-P9M's Console port via a RJ45 cable.

2. Connect NuStreams-P9M's USB port with your PC via mini-USB cable.

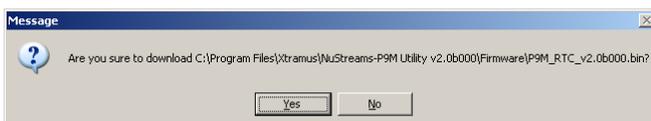
After connecting NuPAD, NuStreams-P9M, and your PC according to the descriptions shown above, please start upgrading NuPAD's firmware by the following steps:



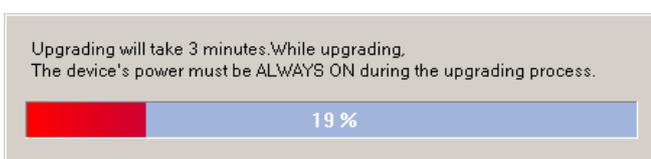
To start upgrading NuPAD's firmware, click **Service** → **System Upgrade** on the **Menu Bar**, and choose **NuPAD Upgrade**.



Select where NuPAD's firmware (in the format of "***.bin**") is stored in your PC, then click "**Open**".

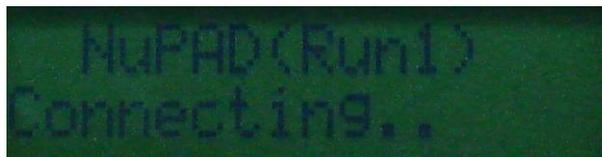
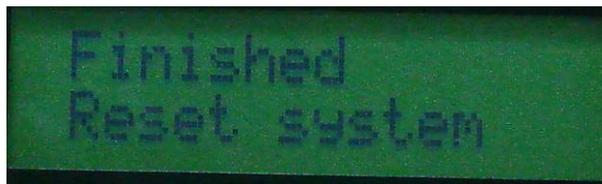


Click **Yes** to start upgrading firmware.

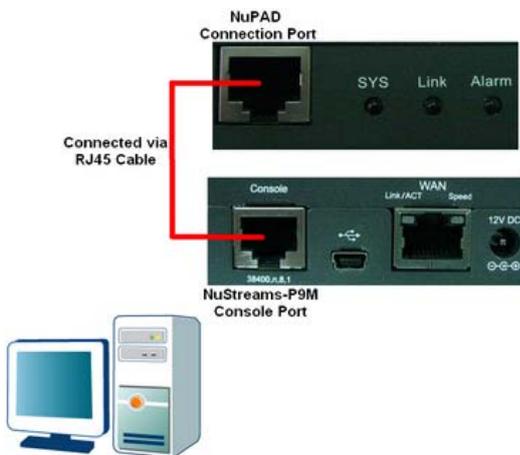


NuStreams-P9M will start the NuPAD firmware upgrading process. Please note that during the upgrading process, NuPAD, NuStreams-P9M, and your PC must be power on and connected properly at all time.

NuPAD's LCD screen will show the firmware upgrading process as shown in the pictures down below:



Firmware upgrading completes. Please click OK to continue.



NuPAD will try to re-connect with NuStreams-P9M after upgrading its firmware. Please remove the mini-USB cable between your PC and NuStreams-P9M when NuPAD is connecting to NuStreams-P9M.

5. NuPAD

NuPAD is an assistant extension keypad, especially designed for running tests at mass production line.

With all test parameters set and stored in NuStreams-P9M, **NuPAD** allows users to perform tests without changing pre-set parameters.



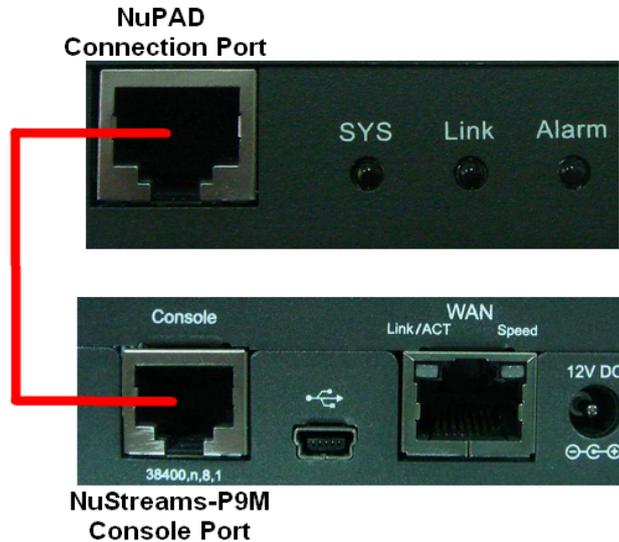
5.1. NuPAD Control Buttons & LCD



A	Connection Port	Connecting NuPAD with NuStreams-P9M's Console Port .
B	LCD Screen	Displaying system information, status, and test results.
C	Control Buttons	<ul style="list-style-type: none"> ➤ Pause: Press this button to pause the current running test. Press this button again to resume the test. ➤ ■ Stop: Press this button to stop the current running test. ➤ ► Run: Press this button to start test.
D/E	System LEDs	<ul style="list-style-type: none"> ➤ Sys/Link/Alarm: Showing NuPAD running status. ➤ Power: When NuPAD is connected to NuStreams-P9M's Console Port, the Green Power LED will be ON. ➤ Pass/Fail: If the test passed, the Pass/Fail Green LED will be ON; if the test failed, the Pass/Fail Amber LED will be ON. ➤ Step 1~4: Showing the progress of the test.

5.2. Connecting NuPAD with NuStreams-P9M

Before using NuPAD as NuStreams-P9M's assistant extension keypad, you have to connect NuPAD's **Connection Port** with NuStreams-P9M's **Console Port** with a Cat-5 cable first as shown in the figure down below.



After connecting NuStreams-P9M with Cat-5 cable, NuPAD will start establishing connection with NuStreams-P9M, and its LCD will display system status as shown down below.



1. NuPAD is powering up.



2. Showing NuPAD's hardware and firmware version.



3. NuPAD starting connecting with NuStreams-P9M. During this process, NuPAD's buzzer will be beeping.



4. Connection established, and NuPAD's buzzer stops beeping. If NuPAD's buzzer keeps beeping and the connection between NuStreams-P9M and NuPAD can't be established, please power off both NuStreams-P9M and NuPAD, power them on, and try again.

5.3. Starting DUT Tests with NuPAD



NuPAD has 3 buttons on its front panel: “|| **Pause**”, “■ **Stop**”, and “▶ **Run**”. After connecting NuPAD with NuStreams-P9M with Cat-5 cable, you can start/pause/stop DUT tests with these 3 buttons.

Please see the table down below for a detailed description about these buttons’ functions.

Function	Button	Description
Start Testing All Tasks in Current Run	▶ Run	Press “▶ Run ” to start all Tasks in the current Run. The current Run (Run 1~3) about to be tested will be displayed on the upper-right part of LCD. 
Switching Current Run	Pause + ■ Stop	To change the current Run (Run 1~3), press both “ Pause ” and “■ Stop ” buttons at the same time. If NuPAD is current in Run 1, pressing both “ Pause ” and “■ Stop ” buttons at the same time will switch the current Run from Run 1 to Run 2.
Pause Current Running Test	Pause	Press “ Pause ” button once to pause the current running test. Press “ Pause ” button again to resume the test.
Stop Current Running Test	■ Stop	Press “■ Stop ” button once to stop the current running test.