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## **IAC4000 Port-Location Mapping with the NP2624M VLAN Switch**

## Introduction

The following paper provides instructions on how to configure NetComm's IAC4000 Internet Access Controller with NetComm's NP2624M VLAN Switch. It specifically focuses on the IAC4000's *Port-Location Mapping* feature which requires IEEE 802.1Q VLAN tagging in order to work.

This document is being created at a time when the following versions of firmware were in production:

- IAC4000: version 1.09.02
- NP2624M: version 2.02.07

## IAC4000 Port-Location Mapping (IEEE 802.1Q VLAN Tagging)

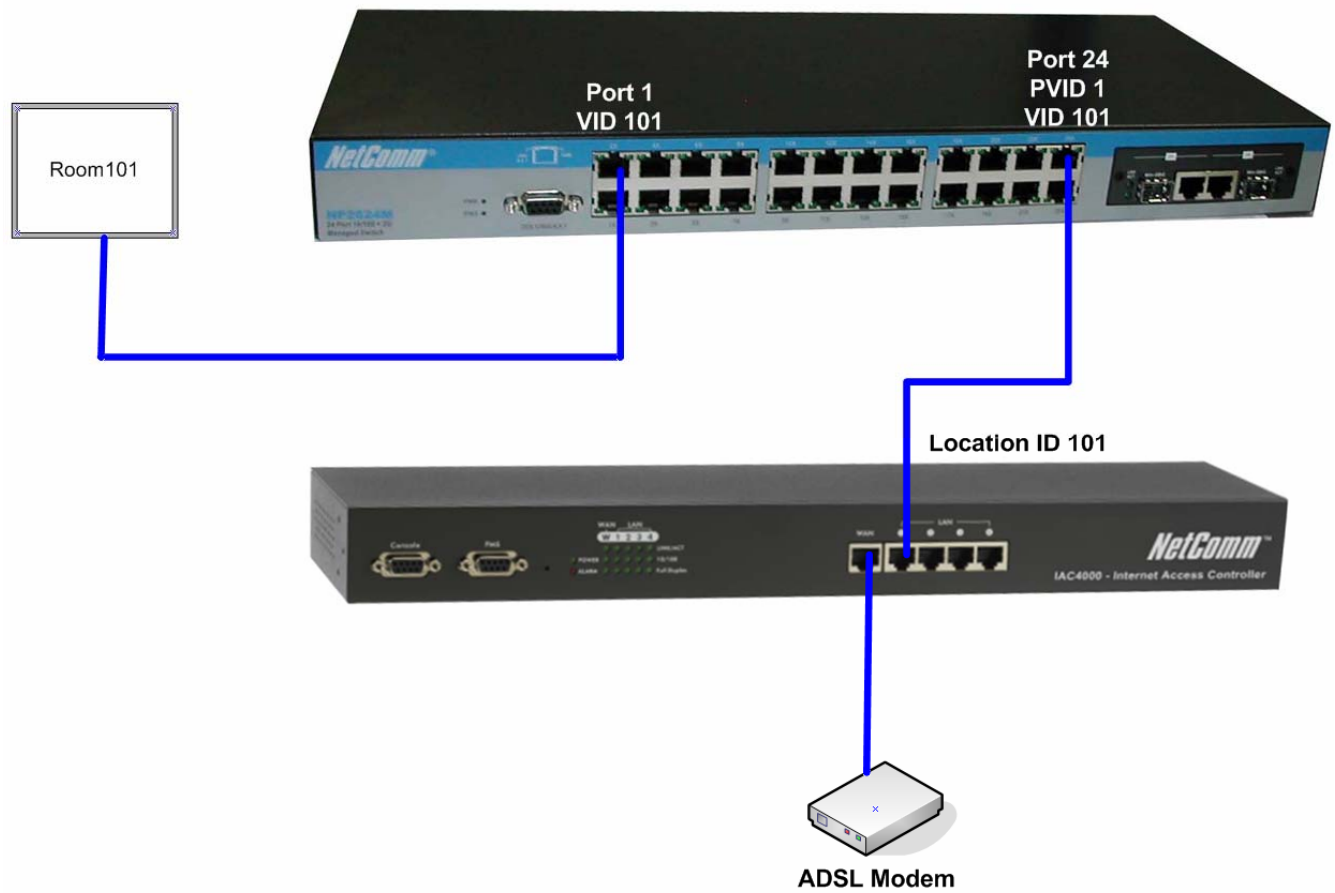
The IAC4000 uses Port-Location Mapping (henceforth PLM) for *Scenario A* authentication only. Scenarios B and C are not covered in this paper. PLM insists that the network into which the IAC4000 is installed supports IEEE 802.1Q VLAN tagging for packets traveling between the IAC4000 and the network.

As the name suggests, PLM assigns a unique VLAN ID (VID) to each room or location in order to bill the room using a Property Management System (PMS, e.g. Micros Fidelio) installed at the premises. Note that in order to make use of PLM the site will need to have both IEEE 802.1Q VLAN tagging capability and a PMS system. Please refer to the IAC4000 User Guide for supported PMSs.

The IAC4000's PLM feature will *accept* 802.1Q VLAN *tagged* packets and send back *untagged* packets to the device connected to a particular port. It is therefore important to confirm with the manufacturer of the 802.1Q VLAN device used on the network that it supports the ability to tag packets being sent to the IAC4000 and accept untagged packets being sent from the IAC4000 to the device.

## Logical Network Diagram

The following diagram represents the logical setup of the network for room 101.



## Configuring the NP2624M VLAN Switch for 802.1Q VLAN Tagging

The NP2624M can be configured using a console (e.g. Hyperterminal) or through a web browser (e.g. Internet Explorer 5 or above). In this example the switch will be configured for room 101 in a hotel. Note that the NP2624M cannot be configured using a web browser if the switch is connected to another router. Make sure you disconnect any routers connected to the switch before attempting web browser configuration.

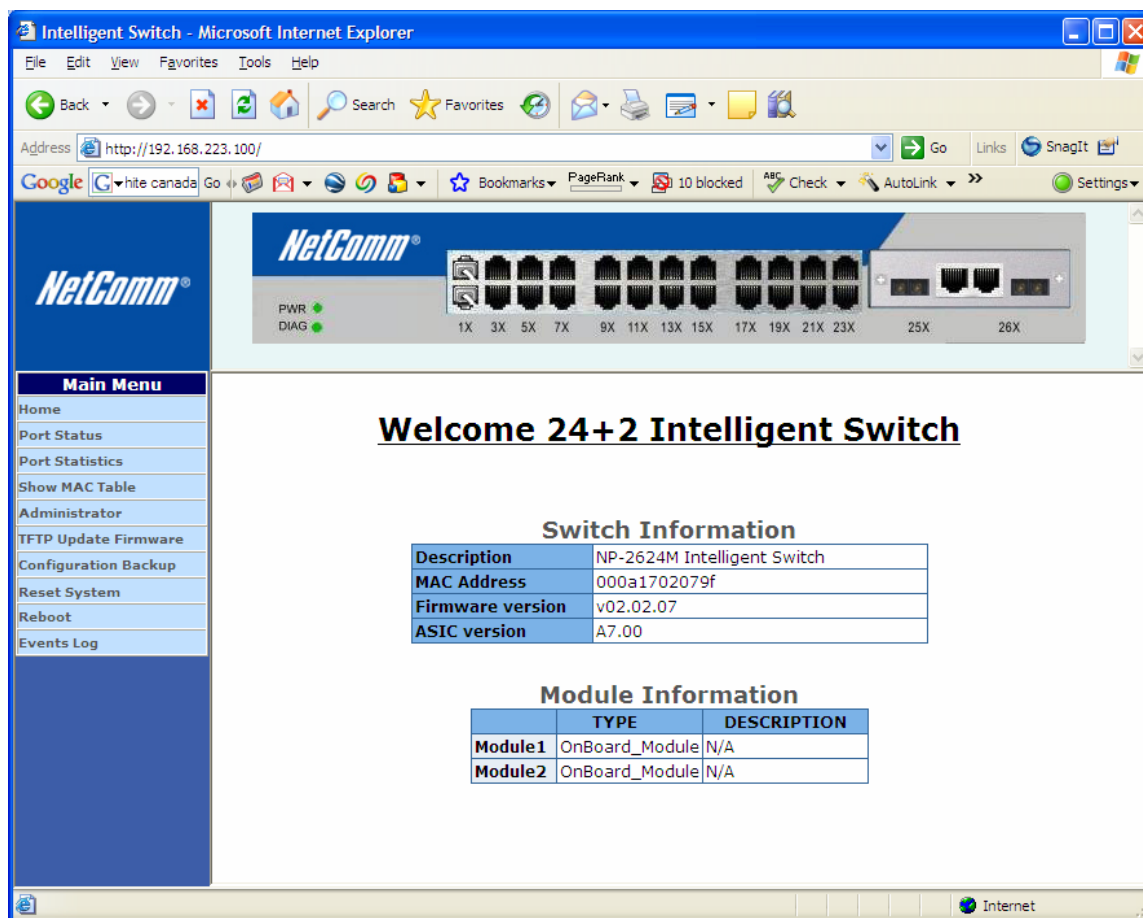
The default settings for the NP2624M are:

- IP address: 192.168.223.100
- Mask: 255.255.255.0
- Gateway: 192.168.223.254

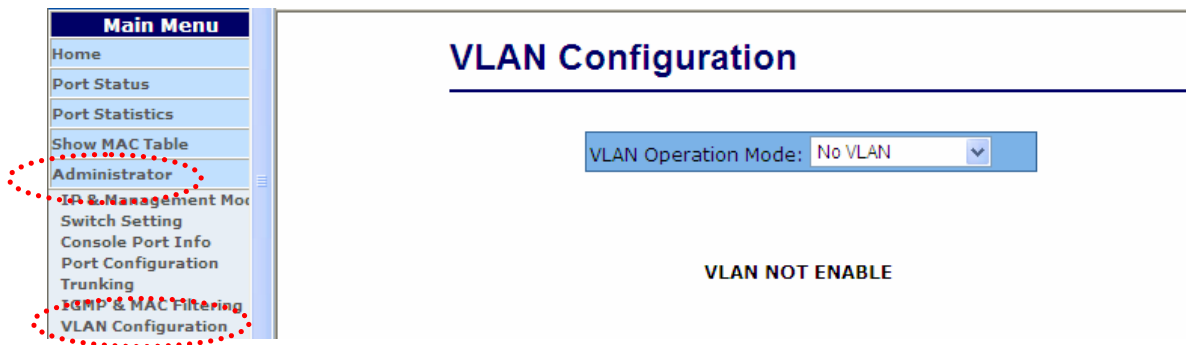
Therefore, assign the PC connected to the NP2624M with the following network settings:

- IP address: 192.168.223.101 (anything except 192.168.223.100)
- Mask: 255.255.255.0

Login to the NP2624M using a web browser (username / password: *admin / admin*):

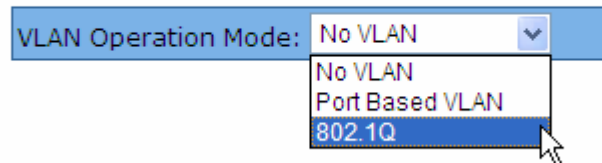


Click *Administrator* → *VLAN Configuration*:



Select 802.1Q from the *VLAN Operation Mode* dropdown:

## VLAN Configuration



**VLAN NOT ENABLE**

Enter the *VLAN Name* as *room101*, the *VLAN ID (VID)* as *101* (this has to be identical to the *Location ID* and *Port ID* in the IAC4000). There is no need to select a *Protocol VLAN*. Add *PORT1* and *PORT24* to this VLAN and click *Next*:

The screenshot shows the 'VLAN Configuration' form with the 'Basic' tab selected. The form contains the following fields and controls:

- VLAN Name:** room101
- VID:** 101
- Protocol Vlan:** NONE (dropdown menu)
- Port List (Left):** A list of ports including PORT15, PORT16, PORT17, PORT18, PORT19, PORT20, PORT21, PORT22, PORT23, MOD\_1, and MOD\_2.
- Port List (Right):** A list of selected ports, currently showing PORT1 and PORT24.
- Buttons:** 'Add >>' and '<< Remove' buttons are located between the two port lists. At the bottom, there are 'Next' and 'Help' buttons. A mouse cursor is pointing at the 'Next' button.

Packets traveling into PORT1 are *untagged* and packets traveling into PORT24 need to be *tagged* before they are sent to the IAC4000. Click *Apply* once done:

## VLAN Configuration

VLAN Operation Mode: 802.1Q

VLAN Name:	room101		
VLAN ID:	101		
UnTag Member			
PORT1	Untag	PORT24	Tag
<input type="button" value="Apply"/>			

Click on *Port VID* and select *PORT1*. Change the *PVID* to 101 and disable *Ingress Filtering 1* and *Ingress Filtering 2*. Click *Apply*:

Basic		Port VID	
Assign a Port VLAN ID (1~255) for untagged traffic on each port, then click Submit to apply the changes on this page.			
Ingress Filtering Rule 1 (Forward only packets with the configured VID) Ingress Filtering Rule 2 (Drop Untagged Frame)			
NO	PVID	Ingress Filtering 1	Ingress Filtering 2
PORT1 PORT2 PORT3 PORT4	101	Disable	Disable
<input type="button" value="Apply"/> <input type="button" value="Default"/> <input type="button" value="Help"/>			
NO	PVID	Ingress Filtering 1	Ingress Filtering 2
PORT1	101	DISABLE	DISABLE

Select *PORT24*. Disable *Ingress Filtering 1* and *Ingress Filtering 2*. Click *Apply*:

Basic

Port VID

Assign a Port VLAN ID (1~255) for untagged traffic on each port, then click Submit to apply the changes on this page.

Ingress Filtering Rule 1 (Forward only packets with the configured VID)

Ingress Filtering Rule 2 (Drop Untagged Frame)

NO	PVID	Ingress Filtering 1	Ingress Filtering 2
<div>PORT23</div> <div>PORT24</div> <div>MOD_1</div> <div>MOD_2</div>	<div>1</div>	<div>Enable</div>	<div>Disable</div>

Apply

Default

Help

NO	PVID	Ingress Filtering 1	Ingress Filtering 2
PORT24	1	DISABLE	DISABLE

Configure other ports and reboot the NP2624M for settings to take effect. Then connect Port24 of the NP2624M to one of the LAN ports on the IAC4000.

Change PC's network settings to get IP address details automatically from IAC4000 (DHCP client) and connect to IAC4000.

## Configuring the IAC4000 for Port-Location Mapping (Scenario A)

### 1. Setup Scenario A for Authentication

Login to the interface of the IAC4000 using a web browser (e.g. Internet Explorer 5 or above) – username / password = admin / admin:

Internet Subscriber Server II  
PLUG AND PLAY SECURE ACCESS CONTROLLER

Version 1.09.02

Username: admin

Password: ••••••

Get Started

Best Viewed with Microsoft Internet Explorer 4.0 and above at 800 x 600 resolution

Navigate to System Setting → Authentication and click Select Option:

Configuration Menu

- Configuration Menu
  - System Setting
    - System
    - WAN / LAN
    - Server
    - NAT Pool
    - Authentication
    - Billing
    - Accounting
    - Port-Location Mapping

Authentication Configuration

Authentication Type

- ☒ No Authentication
- ☐ User Agreement
  - ☐ Redirect URL Link  [Code](#)
  - ☒ Standard User Agreement page
- ☐ Built-in Authentication

Three pre-configured options are provided for easy setup best suits your network needs. You must then proceed and "Accounting" settings to complete your setup.

Current preset option: **Scenario C** [Select option](#)



Select *Scenario A* and click *Apply*:

Scenario Guide			
Express way to fit your business model			
Items check	<input checked="" type="radio"/> Scenario A	<input type="radio"/> Scenario B	<input type="radio"/> Scenario C
PMS billing system	Yes <input type="checkbox"/> Output bill to AG Number of copies <input type="text" value="1"/>	Yes	No

Click *Apply* again on the *Authentication* webpage and restart the IAC4000 for the settings to take effect:

Restart
To Restart the system, click <i>Apply</i>
<input type="button" value="Apply"/>

## 2. Setup Port-Location Mapping for Room 101




Navigate to *System Setting* → *Port-Location Mapping*. Enter the *Location Identifier (ID)*, *Port Identifier (ID)* and *Description*. The Location ID and Port ID need to be the same as the VLAN ID setup in the NP2624M VLAN switch and click *Add to List*:

Port-Location Mapping			
Single Create			
Location Identifier (ID)	<input type="text" value="101"/>	Port Identifier (ID)	<input type="text" value="101"/>
Description	<input type="text" value="room101"/>		
Status: <input type="radio"/> No Charge <input checked="" type="radio"/> Charge for use <input type="radio"/> Blocked			<input type="button" value="Add to List"/>

### 3. Setup Billing profiles for users to select Internet usage

Navigate to System Setting → Billing and setup the billing profiles:

| [Billing Profile](#) | [PMS Configuration](#) |

Billing Profile				
Currency: \$ (Number of decimals places: 2)				
No	Active	Name	Description	Profile Setting
01	<input checked="" type="checkbox"/>	Profile 1	1 day \$10.00	<a href="#">Edit</a> 
02	<input type="checkbox"/>			<a href="#">Edit</a> 
03	<input type="checkbox"/>			<a href="#">Edit</a> 

#### 4. Select the Property Management System (PMS)

Click on *PMS Configuration* under *System Settings* → *Billing* and select the PMS and click *Apply*:

<a href="#">Billing Profile</a>   <a href="#">PMS Configuration</a>	
PMS Configuration	
Many hotels use PMS as a hotel in-door billing system for their guests including room service, mini-bar, telephone usage; as well as Internet service. By integrating with a hotel's PMS, the system can post charges for Internet access directly to a guest's hotel bill.	
Charge Mode (only for Port-Location Mapping enabled)	<input checked="" type="radio"/> Based on Room <input type="radio"/> Based on Subscriber
Regenerate password of static account with PMS checkout	Enable <input type="button" value="v"/> (only for Scenario B)
PMS Type	<input type="radio"/> Micros Fidelio
	<input type="radio"/> Spectrum MK II
	Revenue Code <input type="text" value="1"/> (1-99)
	Description <input type="text" value="Internet"/>
	<input type="radio"/> Marriott
	Revenue Code <input type="text" value="1"/> (1-99)
Reference <input type="text" value="Internet"/>	
<input checked="" type="radio"/> Proprietary	

If the site does not have a listed PMS (Micros Fidelio, Spectrum MK II or Marriott, then select Proprietary and use Net Retriever software to allow the IAC4000 to communicate with the PMS.<sup>1</sup>

Click *Apply* to restart the system.

<sup>1</sup> Net Retriever is designed by Votech in Surfers Paradise, QLD – <http://www.votech.com.au>, [info@votech.com.au](mailto:info@votech.com.au)

## Port-Location Mapping in action

Now that PLM on the IAC4000 and VLAN tagging on the NP2624M have been setup, it is time to test it! Recall in the example that ports 1 and 24 on the NP2624M have a VLAN ID of 101.

Connect the PC to port 1 of the NP2624M and renew the PC's IP address. Connect port 24 of the NP2624M switch to any available LAN port on the IAC4000. Make sure that the IAC4000 is connected to the Internet through its WAN port.

Attempt to access the Internet by browsing a website. If PLM has been setup correctly, the following page will be presented:

Welcome	
Please choose from the following service selection	1 day \$10.00 ▾
How many units of Internet access would you like to purchase?	1 ▾
<small>*Please kindly note that there will be no refund once connectivity is confirmed. *Please note that the time block of selected service is based on continuous usage.</small>	
Please click ENTER to confirm your acceptance of the usage charge or CANCEL to exit. The selected service charge will be posted directly into your guest folio.	
<div>Enter Cancel</div>	

Click the *Enter* button to accept the charge. This information will be sent to the PMS system via the console port on the rear of the IAC4000.

Note: if the following page is presented instead of the login page above, then the setup is incorrect. Please review the above steps and try again or call NetComm support.

Welcome	
Username:	<input type="text"/>
Password:	<input type="password"/>
<div>Enter Cancel</div>	

With the login page above it is possible to create Static accounts to issue to guests in locations that don't support PLM (i.e. locations that are public – e.g. the bar or swimming pool). With Net Retriever software this data is capable of being sent to the PMS and charge the user's room.

Navigate to *System Status* → *Current User List* and the following information should be presented:

Current User List									
refresh ↺								Print List	
No.	Type	Username	Billing Profile		Login Time	Expiration	IP Address	MAC Address	Disconnect
1	Location	101	1	Profile 1	2006/02/06 15:23:28	2006/02/07 15:23:28	10.59.1.2	00:12:3F:21:7C:D5	<input type="checkbox"/>
								Disconnect	Disconnect All
GO 1 Page First Previous Next End									

If you have any questions, please email Brett Stevens ([bretts@netcomm.com.au](mailto:bretts@netcomm.com.au)) for clarification.