



User Guide

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Chapter 1. Before You Start

Preface

NP726 is a high performance outdoor Customer-Premise Equipment, CPE, with IP67 compliance (dust resistant and waterproof). It is a specially designed dual-mode system for the Wireless Internet Service Provider, WISP, where it can be configured as a wireless gateway or an Access Point, AP; for example, it can be deployed at environments such as a Multi Dwelling Unit/ Multi Tenant Unit (MDU/ MTU) complex, and serve as a last-mile alternative to traditional DSL depending on the deployment needs.

This manual provides step-by-step instructions with pictorial aid to guide the administrator through installing and configuring NP726 for both CPE mode and AP mode; users with basic network knowledge can easily install the system via a web-based management interface.

Conventions

- Conventions used in the system are:
 - : Return to System Homepage by clicking this button.
 - : Logout the system by clicking on this button.
 - : Enter Online Help page by clicking this button.
 - : Save settings entered by clicking this button.
 - : Activate settings entered by clicking this button.
 - : Clear settings entered by clicking this button.
 - * : Indicate information in the related field is required.
- Conventions used in this manual:
 - **Warning:** Indicate there is caution or warning message to inform something which might damage the system.
 - **Note:** Indicate information that the user shall pay attention to.

Chapter 2. System Overview

Introduction of NP726

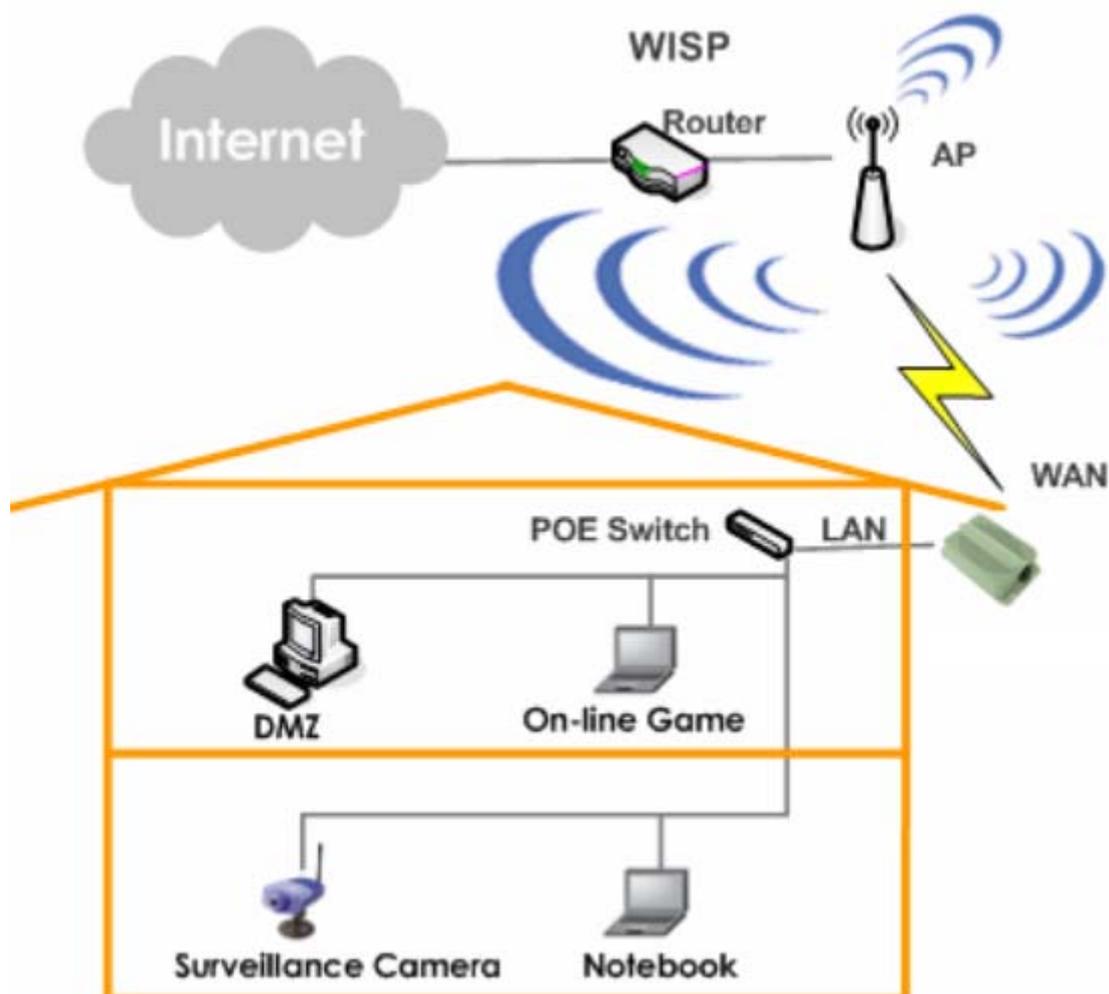
The 802.11 b/g compliant NP726 is an outdoor wireless device that can be used for dual purposes. Either it can be deployed as a traditional fixed wireless Access Point (AP) or it can be used as a Customer Premises Equipment (CPE) that connects to Wireless Internet Service Provider's, WISP's, wireless outdoor network.

The metal sealed NP726 is compact in size and weatherproof. Included is a mounting kit, which can be used to mount the NP726 on a pole or wall. It is suitable for both indoor and outdoor usage with its 200mW output power, which is higher than a typical indoor AP (100mW), and lower than a typical WISP's outdoor AP (500mW).

System Concept

The NP726 is designed with WISP's deployment needs in mind, especially the management capability and permission control with respect to management roles. The NP726 can be used in many applications as can be seen below:

- Wireless CPE for Multi Dwelling Unit, MDU, Multi Tenant Unit, MTU, complexes, such as apartments, dormitories, and office complexes.
- Outdoor access point for school campuses, enterprise campuses, or manufacture plants.
- Indoor access point for hotels, factories, or warehouses where metal industrial grade devices are preferred.
- Public hotspot operation for café, parks, convention centers, shopping malls, or airports.
- Wireless coverage for both indoor and outdoor grounds for private resorts, acre estate/home's yards, or gulf course communities.



Chapter 3. Base Installation

Hardware Installation

Package Contents

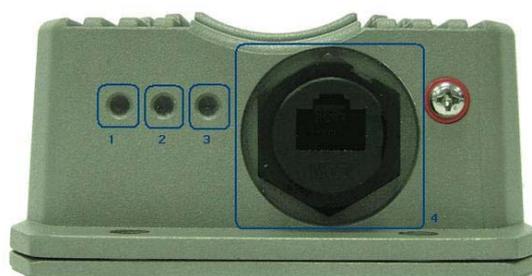
The standard package contents of NP726:

- NP726 x 1
- CD-ROM (with User Manual and QSG) x 1
- Mounting Kit x 1
- Waterproof Connector Pack x 1
- Power adapter and PSE (48VDC 0.4A) x 1

Warning: It is highly recommended to use all the supplied components other than any substitute to ensure best performance of the system.

Panel Function Descriptions

Front Panel



1. Power: Green LED ON indicates power on, and OFF indicates power off.
2. WLAN: Green LED ON indicates system ready.
3. Ethernet: Green LED ON indicates connection, OFF indicates no connection, and BLINKING indicates transmitting data.
4. PoE Connector: For connection to power sourcing equipment (PSE).

Rear Panel



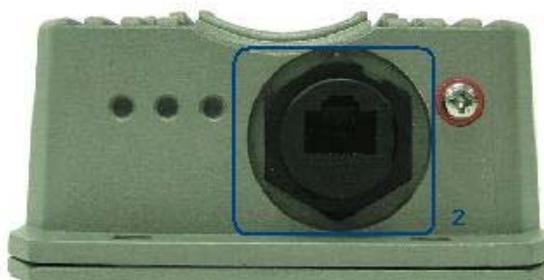
1. N-type Connector: For connection to antenna.

Hardware Installation Steps

Please follow the steps mentioned below to install the hardware of NP726:



Rear Panel



Front Panel

1. Connect N-type antenna to the N-type connector on the rear panel.
2. Connect PSE to the PoE connector on the front panel.
3. Connect an Ethernet cable to the PSE and the other end to a computer.
4. Power on the PSE in order to supply power to NP726.

Software Configuration

Instruction to Web Management Interface

NP726 provides a user friendly web management interface for configuration. As the NP726 is a dual mode system which can be configured into either a gateway or access point as desired, it is recommended the system manager

follows the respected installation procedures of the desired mode in order to properly setting up the system.

- **Default IP Address:**

The default IP address and Subnet Mask for the CPE mode and AP mode are as follows:

Mode	CPE Mode	AP Mode
IP Address	192.168.10.1	192.168.26.1
Subnet Mask	255.255.255.0	255.255.255.0

Furthermore, there are two system management accounts for maintaining the system, root and admin, and each of which will have different levels of management capabilities. The root manager account is empowered with full privilege while the admin manager is with partial; for more information on the privileges of these two accounts, please refer to **Appendix A. System Manager Privileges**.

- **Default User Name and Password:**

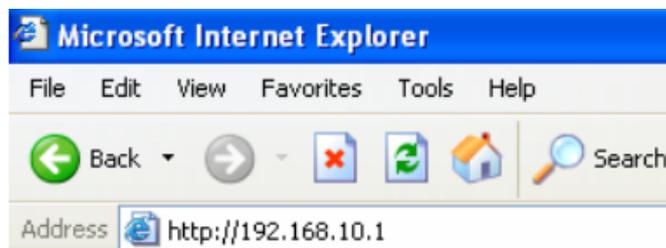
The default **User name** and **Password** for both root manager account and admin manager account are as follows:

Mode	CPE Mode		AP Mode
Manager Account	Root Account	Admin Account	Root Account
User name	root	admin	root
Password	admin	admin	admin

3.2.1.1. CPE Mode

Step 1: Launch Web Browser

Launch a web browser to access the web management interface of CPE mode by entering the default IP address, ***http://192.168.10.1***, in the URL field, and then press ***Enter***.



Note: The default IP addresses for CPE mode and AP mode are different. Using an incorrect default IP address will result in no Login Page shown in web browser. Please make sure correct IP address is used for the desired mode; refer to **Section 3.2.1. Instruction to Web Management Interface** for detailed default IP addresses.

Step 2: System Login

The system manager Login Page then appears.

Enter "***root***" as **User name** and "***admin***" as **Password**, and then click **OK** to login to the system; the root manager account is used as an example here.



Note: For more information on default User name and Password for both root manager account and admin manager account, please refer to **Section 3.2.1. Instruction to Web Management Interface**.

Step 3: Login Success

System Overview page will appear after successful login.

To logout, simply click on the Logout button on the top right hand corner of the management interface.

The screenshot shows the NetComm management interface for the NP726 device. At the top, there is a header with the NetComm logo and website URL, and navigation links for Home, Logout, and Help. Below the header is a menu bar with icons for System, Wireless, Firewall, Utilities, and Status. The main content area shows the 'System Overview' page, which includes a breadcrumb trail: Home > Status > System Overview. The page is divided into four sections: System, Radio Status, LAN Interface, and WAN Interface, each displaying key configuration and status information.

System	
System Name	NP726
Firmware Version	1.00.00
Build Number	1.2-1.1670
Location	Sydney, Australia
Site	EN-E
Device Time	2000/01/01 01:41:22
System Up Time	0 days, 1:41:22
Operating Mode	CPE

Radio Status	
Status	Connected
SSID	wireless
MAC Address	00:60:64:24:54:9d
Channel	6
Signal Strength	50
Security	None

LAN Interface	
MAC Address	00:60:64:27:16:5A
IP Address	192.168.10.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled

WAN Interface	
Mode	Static
MAC Address	00:60:64:27:16:5B
IP Address	192.168.26.1
Subnet Mask	255.255.255.0
Gateway	192.168.26.254
Bandwidth	Down: Unlimited UP: Unlimited

Note: By default, CPE mode is enabled. Thus, system manager must login to the system via the CPE mode login page at the first time login to the system. The system manager is then able to switch between modes afterwards. For information on switching between modes, please refer to **Section 4.1.2. Operating Mode** or **Section 5.1.2. Operating Mode**.

3.2.1.2. AP Mode

Step 1: IP Segment Set-up for Administrator's PC

Set the IP segment of the administrator's computer to be in the same range as NP726 for accessing the system. Do not duplicate the IP address used here with IP address of NP726 or any other device within the network.

Example of IP Segment:

The value for underlined area can be changed as desired; the valid range is 1 ~ 254. However, 1 shall be avoided as it is already used by NP726; use 100 as an example here.

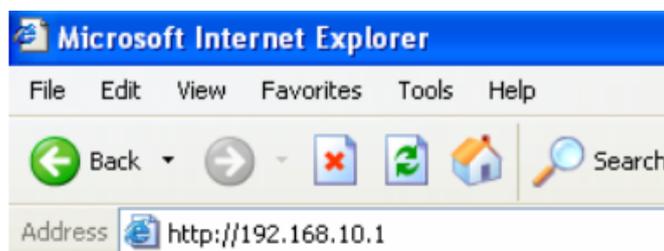
- IP Address: 192.168.26.100
- Subnet Mask: 255.255.255.0.

Note:

1. For more information on default IP addresses, please refer to **Section 3.2.1. Instruction to Web Management Interface**.
2. For more information on setting IP address of the administrator's computer, please refer to **Appendix B. Windows TCP/IP Setting**.

Step 2: Launch Web Browser

Launch a web browser to access the web management interface of AP mode by entering the default IP address, **http://192.168.1.1**, in the URL field, and then press **Enter**.



Note: The default IP addresses for CPE mode and AP mode are different. Using an incorrect default IP address will result in no Login Page shown in web browser. Please make sure correct IP address is used for the desired mode; refer to **Section 3.2.1. Instruction to Web Management Interface** for detailed default IP addresses.

Step 3: System Login

The system manager Login Page then appears.

Enter "**root**" as **User name** and "**admin**" as **Password**, and then click **OK** to login to the system.



Note: There is only one system manager account in AP mode, i.e. the root account.

Step 4:

Login Success

System Overview page will appear after successful login.

To logout, simply click on the Logout button on the top right hand corner of the management interface.

The screenshot displays the NetComm management interface for an NP726 device. At the top, there is a navigation bar with the NetComm logo, the device model 'NP726 - 802 11g outdoor wireless access point', and links for 'Home', 'Logout', and 'Help'. Below this is a main menu with icons for 'System', 'Wireless', 'Firewall', 'Utilities', and 'Status'. The 'System Overview' page is active, showing a breadcrumb trail 'Home > Status > System Overview'. The main content area is titled 'System Overview' and contains four panels: 'System', 'Radio Status', 'LAN Interface', and 'WAN Interface', each displaying various configuration and status details.

System	
System Name	NP726
Firmware Version	1.00.00
Build Number	1.2-1.1670
Location	Sydney, Australia
Site	EN-E
Device Time	2000/01/01 01:41:22
System Up Time	0 days, 1:41:22
Operating Mode	CPE

Radio Status	
Status	Connected
SSID	wireless
MAC Address	00:60:64:24:54:9d
Channel	6
Signal Strength	50
Security	None

LAN Interface	
MAC Address	00:60:64:27:16:5A
IP Address	192.168.10.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled

WAN Interface	
Mode	Static
MAC Address	00:60:64:27:16:5B
IP Address	192.168.26.1
Subnet Mask	255.255.255.0
Gateway	192.168.26.254
Bandwidth	Down: Unlimited UP: Unlimited

Quick Configuration

NP726 is a dual mode system which can be configured either as a gateway or an access point as desired. This section provides a step-by-step configuration procedure for basic installation on both CPE mode and AP mode.

3.2.2.1. CPE Mode

Step 1: Mode Confirmation

Ensure the Operating Mode is currently at CPE mode; the web management UI can be viewed at the **Status** section under the **System Overview** page.

The screenshot displays the NetComm web management interface for the NP726 device. The top navigation bar includes the NetComm logo, the device name 'NP726 - 802 11g outdoor wireless access point', and links for Home, Logout, and Help. Below the navigation bar are five main menu items: System, Wireless, Firewall, Utilities, and Status. The 'System Overview' page is active, showing a breadcrumb trail: Home > Status > System Overview. The main content area is titled 'System Overview' and contains four sections:

- System**: A table listing system details.

System Name	NP726
Firmware Version	1.00.00
Build Number	1.2-1.1670
Location	Sydney, Australia
Site	EN-E
Device Time	2000/01/01 01:41:22
System Up Time	0 days, 1:41:22
Operating Mode	CPE
- Radio Status**: A table showing wireless configuration.

Status	Connected
SSID	wireless
MAC Address	00:60:64:24:54:9d
Channel	6
Signal Strength	50
Security	None
- LAN Interface**: A table showing LAN configuration.

MAC Address	00:60:64:27:16:5A
IP Address	192.168.10.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled
- WAN Interface**: A table showing WAN configuration.

Mode	Static
MAC Address	00:60:64:27:16:5B
IP Address	192.168.26.1
Subnet Mask	255.255.255.0
Gateway	192.168.26.254
Bandwidth	Down: Unlimited UP: Unlimited

Note: For more information in switching to CPE mode, if it is not currently active, please refer to **Section 5.1.2 – Operating Mode**.

Step 2: Change Password

Click on the **Utilities** button and then select the **Change Password** tab.

The screenshot shows a web-based utility interface. At the top, there are five main utility buttons: System, Wireless, Firewall, Utilities (highlighted), and Status. Below these are several sub-tabs: Password, Network Utilities, Config Save Restore, System Upgrade, and Reboot. The breadcrumb path is 'Home > Utilities > Admin Password'. The main heading is 'Change Password'. There are two sections for password changes:

- Root Account:** Name: root. Fields include Old Password (with a note '*up to 32 characters'), New Password, and Re-enter New Password.
- Admin Account:** Name: admin. Fields include New Password and Re-enter New Password.

- **Change Root Account Password**

Enter the old password in the **Old Password** field; default password is **admin**.

Enter a new password, and verify it again in the **New Password** field and **Re-enter New Password** field respectively.

- **Change Admin Account Password**

Enter a new password, and verify it again in the **New Password** field and **Re-enter New Password** field respectively.

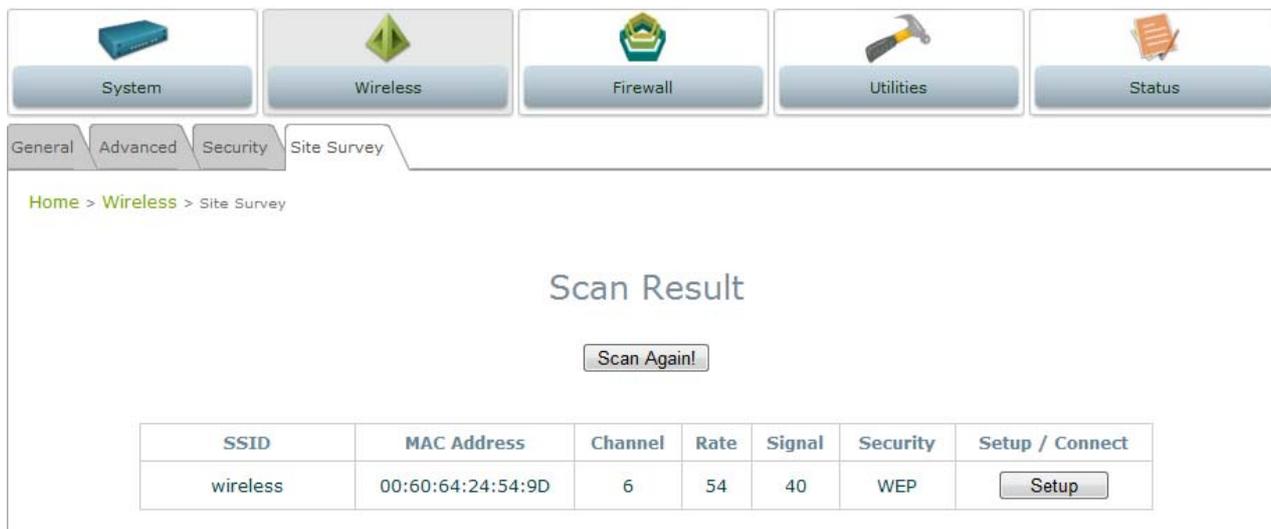
Click **Save**, and proceed with steps followed.

Note: For more information on change password, please refer to **Section 4.1.1. Change Password**.

Step 3: Site Survey

Click on the **Wireless** button and then select the **Site Survey** tab.

The system will automatically scan and display the results on all AP existing near by the system.



Click **Scan Again** if the AP to be associated with were not found on the list.

Note: The scan result displayed here is an example only.

Step 4: Select AP to be Associated

Search for the AP to be associated with from the scan list provided in **Step 3**; use **wireless** as an example here where the AP is encrypted via WEP security type.

Step 5: Security Settings

Click **Setup** of the **wireless**, and a related encryption configuration box will appear.

NetComm® NP726 - 802 11g outdoor wireless access point Home Logout Help

System Wireless Firewall Utilities Status

General Advanced Security Site Survey

Home > Wireless > Site Survey

Scan Result

Scan Again!

SSID	MAC Address	Channel	Rate	Signal	Security	Setup / Connect
wireless	00:60:64:24:54:9D	6	54	40	WEP	Setup

WEP Key Type : Open Shared Auto

WEP Key Length : 64 bits 128 bits

WEP Key Format : ASCII Hex

WEP Key Index : 1

WEP Keys :

1

2

3

4

Connect

Enter the information required in the configuration box. Information to be entered shall be exactly the same as configured in the **wireless AP**.

Click **Save** to save the settings.

Note: For more information on security settings, please refer to **Section 4.2.3 – Security Settings**.

Step 6: WAN Configuration

Click on the **System** button and then select **Network** tab.

Enable Static, and then enter the related information in the field marked with red asterisks.
Click **Save** to save the settings.

Note:

1. Values entered in fields marked with red asterisks are samples only. The actual values shall depend on the actual network deployment.
2. For more information on security settings, please refer to **Section 4.1.3. Network Settings**.

Step 7: LAN Configuration

Click on the **System** button and then select **Network** tab.

The **LAN Configuration** page is on the same page as **WAN Configuration**.

Enter the IP address and Netmask of the LAN port.

Click **Apply** to activate all settings configured so far.

Note: For more information on LAN Configuration, please refer to **Section 4.1.3 – Network Settings**.

Congratulations!

The CPE mode is now successfully configured.

3.2.2.2. AP Mode:

Step 1: Mode Confirmation

Ensure the Operating Mode is currently at AP mode; the web management UI can be viewed at the **Status** section under the **System Overview** page.

The screenshot displays the web management interface for the NP726 device. At the top, there are four main navigation buttons: System, Wireless, Utilities, and Status. Below these, a breadcrumb trail shows 'Home > Status > System Overview'. The main content area is titled 'System Overview' and contains four detailed sections:

- System:** A table listing device information such as System Name (NP726), Firmware Version (1.00.00), Build Number (1.2-1.1670), Location (Sydney, Australia), Site (EN-E), Device Time (2000/01/01 00:00:41), System Up Time (0 days, 0:00:41), and Operating Mode (AP).
- Radio Status:** A table showing wireless configuration details including MAC Address (00:60:64:27:16:5B), Band (802.11b+g), Channel (1), and TX Power (Highest).
- LAN Interface:** A table providing network interface details like MAC Address (00:60:64:27:16:5A), IP Address (192.168.26.1), Subnet Mask (255.255.255.0), and Gateway (192.168.26.254).
- AP Status:** A table listing active profiles with columns for Profile Name, BSSID, ESSID, Security Type, and Online Clients. One profile, VAP-1, is shown with 0 online clients.

*Note: For more information in switching to AP mode, if it is not currently active, please refer to **Section 4.1.2. Operating Mode.***

Step 2: Change Password

Click on the **Utilities** button and then select the **Change Password** tab.

The screenshot displays the 'Change Password' utility interface. At the top, there are four main navigation buttons: 'System' (with a server icon), 'Wireless' (with a signal icon), 'Utilities' (with a hammer icon), and 'Status' (with a document icon). Below these is a secondary navigation bar with tabs for 'Password', 'Network Utilities', 'Config Save Restore', 'System Upgrade', and 'Reboot'. The main content area shows a breadcrumb trail 'Home > Utilities > Admin Password' and the title 'Change Password'. The form contains the following fields and labels:

- Name :** root
- Old Password :** [text input field]
- New Password :** [text input field]
- Re-enter New Password :** [text input field]

A red asterisk note next to the 'New Password' field states '*up to 32 characters'. At the bottom of the form are three yellow buttons: 'SAVE', 'APPLY', and 'CLEAR'.

Enter a new password, and verify it again in the **New Password** field and **Re-enter New Password** field respectively.

Click **Save**, and proceed with steps followed.

Note: For more information to change password, please refer to **Section 5.3.1 Change Password**.

Step 3: Network Settings

Click on the **System** button and then select the **Network** tab.

Enable Static, and then enter the related information in the field marked with red asterisks. Click **Save** to save the settings.

Note: For more information on network settings, please refer to **Section 5.1.3 – Network Setting**.

Step 4: SSID Settings

Click on the **Wireless** button and then select the **General** tab.

Set up the broadcasting SSID for easily identifying the system when device is trying to associate the service. Enter the following information required in the blank field, and others are optional.

1. **Band:** Select appropriate band where the system is located from drop down list.
2. **SSID:** Use the default IP address or specify as desired.

Click **Save** and go to next step.

Step 5: Security Settings

Click on the **Wireless** button and then select the **Security** tab.

Select **WEP** from the drop down list as an example here. Enter the information required in the blank field, and the same information will also be used to set up devices which will then be using NP726's services.

Click **Apply** to activate all settings configured so far.

Note: For more information on security settings, please refer to **Section 5.2.3 – Security Settings**.

Congratulations!

The AP mode is now successfully configured.

Chapter 4. CPE Mode Configuration

When CPE mode is active, the system acts as a gateway where it connects to the WAN wirelessly, and provides Ethernet connection to users via wired LAN. This section will guide you through setting up the CPE mode with graphical illustrations. NP726 provides functions as stated below where they can be configured via a user-friendly web-based interface.

OPTION	System	Wireless	Firewall	Utilities	Status
FUNCTION	System Information	General Settings	IP/ Port Forwarding	Change Password	System Overview
	Operating Mode	Advanced Wireless Settings	Demilitarized Zone	Network Utilities	Event Log
	Network Settings	Security Settings		Configuration Save / Restore	DHCP Lease
	Management Services	Site Survey		System Upgrade	UPnP Status
				Reboot	

Table 4-1: CPE Mode Functions

NetComm®
www.netcomm.com.au

NP726 - 802 11g outdoor wireless access point Home Logout Help

System Wireless Firewall Utilities Status

System Overview Event Log DHCP Lease UPnP

Home > Status > System Overview

System Overview

System

System Name	NP726
Firmware Version	1.00.00
Build Number	1.2-1.1670
Location	Sydney, Australia
Site	EN-E
Device Time	2000/01/01 01:41:22
System Up Time	0 days, 1:41:22
Operating Mode	CPE

Radio Status

Status	Connected
SSID	wireless
MAC Address	00:60:64:24:54:9d
Channel	6
Signal Strength	50
Security	None

LAN Interface

MAC Address	00:60:64:27:16:5A
IP Address	192.168.10.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled

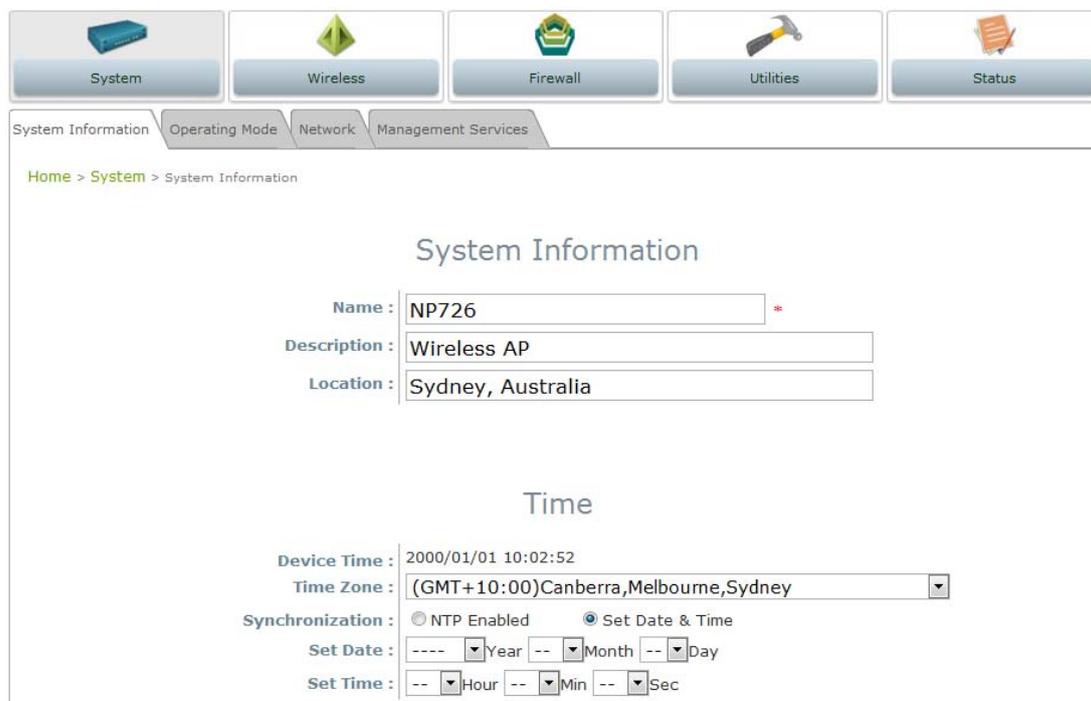
WAN Interface

Mode	Static
MAC Address	00:60:64:27:16:5B
IP Address	192.168.26.1
Subnet Mask	255.255.255.0
Gateway	192.168.26.254
Bandwidth	Down: Unlimited UP: Unlimited

Figure 4-1: CPE Mode Main Page

System

This section provides information in configuring the following functions: **System Information**, **Operating Mode**, **Network Settings**, and **Management Services**.



System Information

Home > System > System Information

System Information

Name : NP726 *

Description : Wireless AP

Location : Sydney, Australia

Time

Device Time : 2000/01/01 10:02:52

Time Zone : (GMT+10:00)Canberra,Melbourne,Sydney

Synchronization : NTP Enabled Set Date & Time

Set Date : --- Year -- Month -- Day

Set Time : -- Hour -- Min -- Sec

Note: System restart is required when a reminding message appears after clicking **APPLY** button; all settings entered and saved will take effect only after the system restart.

System Information

The administrator can later obtain the geographical location of the system via the information configured here. System time can also be configured via this page where manual setting and NTP server configuration are both supported.

System Information

Home > System > System Information

System Information

Name : NP726 *

Description : Wireless AP

Location : Sydney, Australia

Time

Device Time : 2000/01/01 10:02:52

Time Zone : (GMT+10:00)Canberra,Melbourne,Sydney

Synchronization : NTP Enabled Set Date & Time

Set Date : --- Year -- Month -- Day

Set Time : -- Hour -- Min -- Sec

- **System Information:** For maintenance purpose, it is recommended to have the following information stated as clear as possible.
 - **Name:** Enter a desired name or use the default provided.
 - **Description:** Denote further information of the system.
 - **Location:** Enter related geographical location information of the system; administrator/ manager will be able to locate the system easily.
- **Time:**
 - **Device Time:** Display the current time of the system.
 - **Time Zone:** Select an appropriate time zone from the drop down list.
 - **Synchronization:** Set the system time either via synchronization with a NTP server or manual configuration.
 - **NTP Enabled:** Enable Network Time Protocol, NTP, to synchronize the system time with NTP server. Enter IP address or domain name of the NTP server to be synced with; at least one NTP server's information must be provided.

Synchronization : NTP Enabled Set Date & Time

NTP Server 1 : 0.netcomm.pool.ntp.org *

NTP Server 2 :

- **Set Date & Time:** Enable Set Date & Time; the system time can be configured manually.

Synchronization : NTP Enabled Set Date & Time

Set Date : Year Month Day

Set Time : Hour Min Sec

- **Set Date:** Select the appropriate **Year**, **Month**, and **Day** from the drop down list.
- **Set Time:** Select the appropriate **Hour**, **Min**, and **Sec** from the drop down list.

Operating Mode

NP726 supports two operation modes: CPE mode and AP mode. The administrator can set the desired mode via this page, and then configure the system according to their deployment needs.



- **CPE Mode:** Check **CPE Mode** button to enable CPE mode, and then click **Apply** to activate the setting.
- **AP Mode:** Check **AP Mode** button to enable AP Mode, and then click **Apply** to activate the setting.

Note: The system immediately asks for a reboot right after clicking **Apply** in order to activate the mode selected. However, the system does not ask for a reboot right after clicking **Save**; the mode selected will take effect upon next reboot or power cycle to the system.

Network Settings

WAN and LAN settings can be configured via this page.


System


Wireless


Firewall


Utilities


Status

System Information | Operating Mode | Network | Management Services

[Home](#) > [System](#) > [Network](#)

WAN Configuration

Mode : Static DHCP

IP Address : *

Netmask : *

Gateway : *

Primary DNS Server : *

Secondary DNS Server :

Bandwidth Limit :
Download : ▾
Upload : ▾

- **WAN Configuration:** Information entered here shall follow the network setting as the AP to be associated with. Otherwise, the WAN connection cannot be set up.

- **Mode:** Check either Static or DHCP button as desired for setting up the IP of WAN port.
 - **Static:** The administrator can manually set up the WAN IP address if static IP is available/ preferred.

- **IP Address:** The IP address of the WAN port.
- **Netmask:** The Subnet mask of the WAN port.
- **Gateway:** The Gateway IP address of the WAN port.
- **Primary DNS Server:** The IP address of the primary Domain Name System, DNS, server.
- **Secondary DNS Server:** The IP address of the substitute DNS server.

- **DHCP:** This connection type is applicable when the NP726 is connected to a network with the presence of a DHCP server; all related IP information required will be provided by the DHCP server automatically.

➤ **Bandwidth Limit:**

Bandwidth Limit:	Download:	Unlimited ▼
	Upload:	Unlimited ▼

- **Download:** The maximum download bandwidth of WAN interface to be shared by clients.
 - **Upload:** The maximum upload bandwidth of the WAN interface to be shared by clients.
- **Dynamic DNS:** The option can be enabled to bind FQDN-compliant **Host Name** with this device. If enabled, the service **Provider** must be chosen from the drop-down list with provided **Host Name**, **User Name/E-mail**, and **Password/Key**. When DDNS is enabled, the system can be identified on the Internet by its FQDN assigned by registered DDNS service provider.

Dynamic DNS	
DDNS :	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Provider :	<input type="text"/>
Host Name :	<input type="text"/>
User Name / E-mail :	<input type="text"/>
Password / Key :	<input type="text"/>

- **DDNS:** Check **Enable** button to activate this function or **Disable** to deactivate this function.
- **Provider:** The name of the DDNS provider the system is registered with. Select appropriate provider from the drop down list.
- **Host Name:** The FQDN name registered with the above service provider.
- **User name/ E-mail:** The account ID, user name or e-mail, registered with the DDNS provider.
- **Password/ Key:** The password of the account with the DDNS provider.

- **LAN Configuration:** Configuration on LAN and DHCP settings can be performed via this page.

LAN Configuration

IP Address : *

Netmask : *

DHCP Server : Disable Enable

Start IP :

End IP :

Preferred DNS Server :

Alternated DNS Server :

WINS Server IP :

Domain Name :

Lease Time : ▼

- **IP Address:** The IP address of the LAN interface. Enter the IP address to be used for LAN port.
- **Netmask:** The Subnet mask of the LAN interface. Enter the Subnet mask to be used for the LAN port.
- **DHCP Server:** Devices connected to the system can obtain an IP address automatically when this service is enabled.

DHCP Server : Disable Enable

Start IP :

End IP :

Preferred DNS Server :

Alternated DNS Server :

WINS Server IP :

Domain Name :

Lease Time : ▼

- **Enable/ Disable:** Check **Enable** button to activate this function or **Disable** to deactivate this service.
- **Start IP / End IP:** Specify the range of IP addresses to be used by the DHCP server when assigning IP address to clients.
- **Preferred DNS Server:** Enter IP address of the preferred DNS server; this field is required.
- **Alternate DNS Server:** Enter IP address of the second DNS server; this is optional.
- **WINS Server IP:** Enter IP address of the Windows Internet Name Service, WINS, server; this is optional.
- **Domain Name:** Enter the domain name for this network.
- **Lease Time:** Time period of the IP address assigned by the DHCP server will remain valid.

Management Services

The system supports **SNMP**, **Syslog**, **UPnP**, and **Auto Reboot** functions for easy management. The system manager can configure the respected function via this page.

- **SNMP Configuration:** By enabling SNMP function, the administrator can obtain the system information remotely.

- **Enable/ Disable:** Check **Enable** button to activate this function or **Disable** to deactivate this function.
- **Community String:** The community string is required when accessing the Management Information Base, MIB.
 - **Read:** Enter the community string for accessing the MIB with Read privilege.
 - **Write:** Enter the community string for accessing the MIB with Write privilege.
- **Trap:** Events on cold start, interface up & down, and association & disassociation can be reported via this function to an assigned server.
 - **Enable/ Disable:** Check **Enable** button to activate this function or **Disable** to deactivate this function.
 - **Server IP Address:** Enter the IP address of the assigned server for receiving the trap report.

- **Syslog Configuration:** Event can be exported to an external server for record keeping and management via this function.

Syslog Configuration : Disable Enable
 Server IP Address :
 Server Port :
 Log Level :

- **Enable/ Disable:** Check **Enable** button to activate this function or **Disable** to deactivate this function.
 - **Server IP:** The IP address of the Syslog server for receiving the reported events.
 - **Server Port:** The port number of the Syslog server.
 - **Log Level:** Assign the type of the severity level on the events that will be reported to an external Syslog server. Select the desired type from the drop down list.
- **Auto Reboot:** The system can be functioning in a healthier state when this service is enabled.
 - **Enable/ Disable:** Check **Enable** button to activate this function or **Disable** to deactivate this function.
 - **Reboot Time:** Select an appropriate time from the drop down list. It is suggested to have the time set at an off-peak period when reboot has minimum impacts to online users since all users in the network will be disconnected during reboot.

Auto Reboot : Disable Enable
 Reboot Time :

Wireless

This section will guide users through wireless setting for NP726 to associate with its uplink AP.

System Wireless Firewall Utilities Status

General Advanced Security Site Survey

Home > Wireless > General

General Settings

Band : 802.11b+802.11g

SSID :

Short Preamble : Disable Enable

Max Transmit Rate : Auto

Transmit Power : Highest

SAVE APPLY CLEAR

General Settings

System Wireless Firewall Utilities Status

General Advanced Security Site Survey

Home > Wireless > General

General Settings

Band : 802.11b+802.11g

SSID : wireless

Short Preamble : Disable Enable

Max Transmit Rate : Auto

Transmit Power : Highest

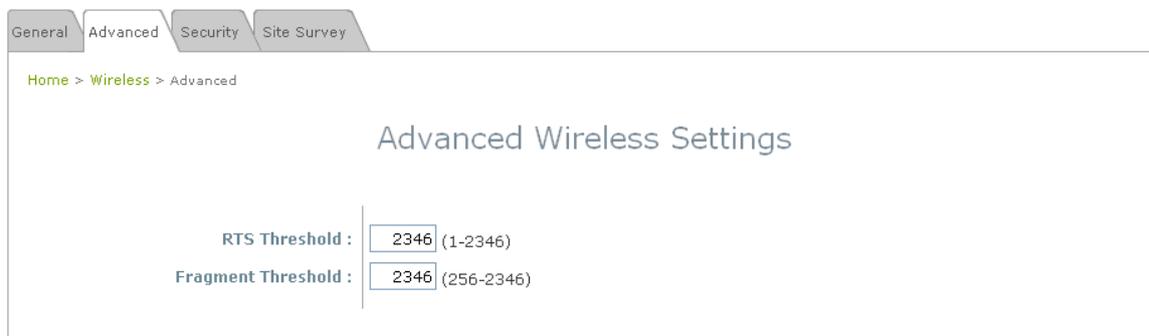
ACK Timeout : 0 *(0 - 255, 0:Auto, Unit:4 micro seconds)

SAVE APPLY CLEAR

- **Band:** Select an appropriate wireless band, or disable if the service is not required; bands available are 802.11b, 802.11g and 802.11b+802.11g.
- **SSID:** Assign Service Set ID for the wireless system to be associated with.
- **Short Preamble:** The short preamble provides 56-bit Synchronization field to improve WLAN transmission efficiency. Check **Enable** button for using Short Preamble, and **Disable** for using the Long Preamble, 128-bit Synchronization field, option.
- **Max Transmit Rate:** The maximum wireless transmitting rate. Select the desired rate from the drop down list; the options are auto, or value ranging from 1 to 54Mbps for 802.11g and 802.11 b/g modes, or 1 to 11Mbps for 802.11b mode. The AP uses the highest possible rate when **Auto** is selected.
- **Transmit Power:** The wireless transmitting power of the system. Select among **Auto**, **Lowest**, **Low**, **Medium**, **High**, and **Highest** from the drop down list.
- **ACK Timeout:** Setup the value of ACK timeout such as the number from 0 to 255, or units in micro seconds.

Advanced Wireless Settings

The administrator can set the RTS threshold, and fragmentation threshold via this page.

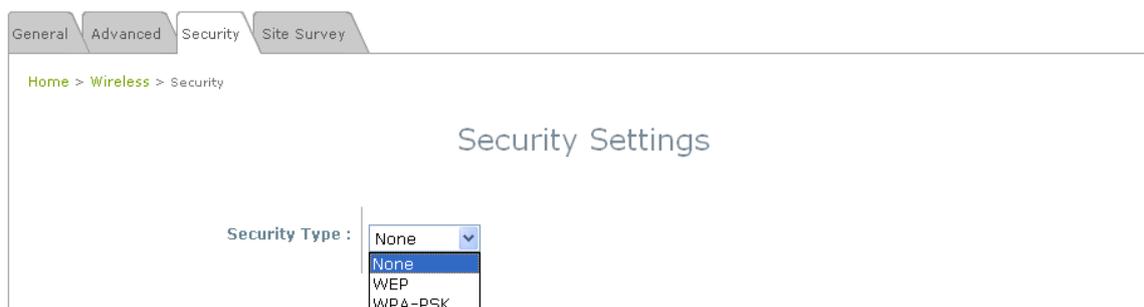


The screenshot shows a web interface with a navigation menu at the top containing 'General', 'Advanced', 'Security', and 'Site Survey'. Below the menu is a breadcrumb trail: 'Home > Wireless > Advanced'. The main heading is 'Advanced Wireless Settings'. There are two input fields: 'RTS Threshold : 2346 (1-2346)' and 'Fragment Threshold : 2346 (256-2346)'. The values '2346' are entered in the input boxes.

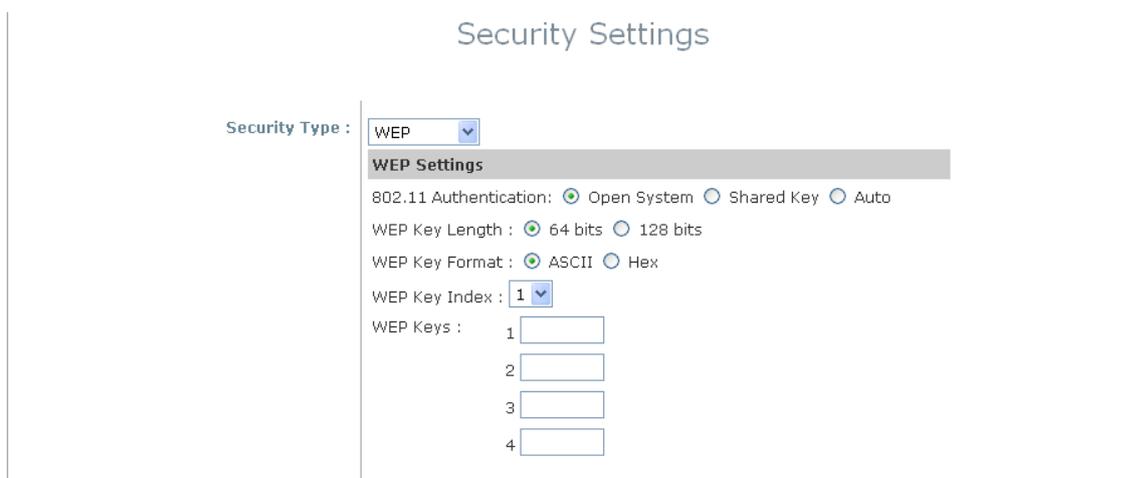
- **RTS Threshold:** Tuning the Request to Send, RTS, threshold will help the system control its access to medium and alleviate the hidden node problem. Enter a value ranging from 1 to 2346.
- **Fragmentation Threshold:** The value specifies the maximum size of packet allowed before data is fragmented into multiple packets. Please use this value to tune the wireless connection if lots of retransmission happens. Enter a value ranging from 256 to 2346.

Security Settings

The system supports two encryption types, WEP and WPA-PSK. The administrator can configure the encryption settings via this page, or disregard the encryption by selecting **None** from the drop down list.



- **None:** Data is unencrypted during transmission when this option is selected.
- **WEP:** Wired Equivalent Privacy is a data encryption mechanism based on a 64-bit or 128-bit shared key algorithm. Select **WEP** as the security type from the drop down list as desired. The WEP key configured here must be exactly the same as the key on the access point or repeater that this system is associated with.



- **802.11 Authentication:** Enable the desired option among **Open System**, **Shared Key**, or **Auto**.
- **WEP Key Length:** Check on the respected button to enable either **64-bit** or **128-bit** key length.
- **WEP Key Format:** Check on the respected button to enable either **ASCII** or **Hex** format for the WEP key.
- **WEP Key Index:** The key index selected is used to designate the WEP key during data transmission. Select the desired key index from the drop down list.
- **WEP Key:** Provide WEP key value; the system supports up to 4 sets of WEP keys.

- **WPA-PSK:** WI-Fi Protected Access Pre-shared Key allows the system in accessing the network by using the WPA-PSK protected access.

Security Settings

Security Type : WPA-PSK

WPA Settings

Cipher Suite : TKIP (WPA)

Pre-shared Key Type : PSK(Hex) *(64 chars)
 Passphrase *(8 - 63 chars)

Pre-shared Key :

Group Key Update Period: second(s)

- **Cipher Suite:** Select an encryption method to be used from the drop down list, i.e. **TKIP** or **AES**

Security Type : WPA-PSK

Cipher Suite : TKIP (WPA)

Pre-shared Key Type : PSK(Hex) *(64 chars) Passphrase *(8 - 63 chars)

Pre-shared Key :

Group Key Update Period: second(s)

- **Pre-shared Key Type:** Check on the respected button to enable Pre-shared key type, either PSK (Hex) or Passphrase.
- **Pre-shared Key:** Enter the information for pre-shared key; the format of the information shall according to the key type selected.
- **Group Key Update Period:** The time interval for the Group Key to be renewed. Enter the time-length required; the unit is in second.

Site Survey

Access points located around the system can be found via the scan function. The administrator can then select a desired AP to be associated with via this page.

The screenshot shows the 'Site Survey' page with a 'Scan Result' section. A 'Scan Again!' button is located above a table of scan results. The table has the following data:

SSID	MAC Address	Channel	Rate	Signal	Security	Setup / Connect
NetComm1	00:60:64:02:49:CF	6	54	20	WPA-PSK	Setup
11n_test	00:60:64:12:3C:CD	11	54	20	WPA2-PSK	Setup
11gb	00:60:64:23:F6:30	6	54	16	WPA-PSK	Setup
PDG testing	00:60:64:44:1A:EE	1	54	13	WEP	Setup
Wireless	00:60:64:02:32:CA	11	54	7	None	Connect

Figure 4-2-4-1: AP Scan Result

- **SSID:** Service Set ID of the AP or repeater found around the system.
- **MAC Address:** MAC address of the respected AP or repeater.
- **Channel:** The channel number currently used by the respective AP or repeater.
- **Rate:** The transmitting rate of the respected AP or repeater.
- **Signal:** The signal strength of the respected AP or repeater.
- **Security:** Security type enabled by the respected AP or repeater.
- **Setup/ Connect:**
 - **Connect:** Click **Connect** to associate with the respected AP directly; no further configuration is required.

Wireless	00:60:64:02:32:CA	11	54	7	None	Connect
----------	-------------------	----	----	---	------	---------

- **Setup:** Click **Setup** to configure settings for associating with the respected AP or repeater.
 - **WEP:** Click **Setup** to configure the WEP setting required by to-be-associated target AP.

PDG testing	00:60:64:44:1A:EE	1	54	13	WEP	Setup
-------------	-------------------	---	----	----	-----	-------

The following interface appears at the bottom of the screen. For more information on the WEP

security settings, please refer to **Section 4.2.3- Security Settings**.

WEP Key Format : Open Shared Auto
WEP Key Length : 64 bits 128 bits
WEP Key Format : ASCII Hex
WEP Key Index : 1 ▾
WEP Keys :
1
2
3
4

- **WPA-PSK:** Click **Setup** to configure the WPA-PSK setting required by to-be-associated target AP.

NetComm1	00:60:64:02:49:CF	6	54	20	WPA-PSK	<input type="button" value="Setup"/>
----------	-------------------	---	----	----	---------	--------------------------------------

The following interface appears at the bottom of the screen. For more information on the WPA-PSK security settings, please refer to **Section 4.2.3- Security Settings**.

Pre-shared Cipher : TKIP ▾
Pre-shared Key Type : PSK(Hex) *(64 chars)
 Passphrase *(8 - 63 chars)
Pre-shared Key :

Note: The detailed information of AP displayed in **Figure 4-2-4-1** is for example only. Actual data of APs available to the system shall depend on the actual networking environment where the system is in operation.

Firewall

Current firewall functions supported are IP/ Port forwarding and DMZ, Demilitarized Zone. The administrator can open a certain area in the network to the Internet for limited and controlled access for special purpose such as gaming server or conferencing center.


System


Wireless


Firewall


Utilities


Status

IP/Port Forwarding
DMZ

Home > Firewall > IP/Port Forwarding

IP/Port Forwarding

Service Name

External Port Range

User Define

▼

~

Internal IP Address

Protocol

TCP/UDP

▼

Add

IP/Port Forwarding

Item	Service Name	External Port Range	Internal IP Address	Protocol	State	Delete	Edit

IP/ Port Forwarding

A certain area in the network can be exposed to the Internet in a limited and controlled way for on-line game or video conferencing via this page. Please ensure the internal port to be used is not occupied by other applications.

The screenshot shows the 'IP/Port Forwarding' configuration interface. At the top, there are tabs for 'IP/Port Forwarding' and 'DMZ'. Below the tabs is a breadcrumb trail: 'Home > Firewall > IP/Port Forwarding'. The main title is 'IP/Port Forwarding'. Below the title is a form to add a new service. The form has four main sections: 'Service Name' (a text input field), 'External Port Range' (a dropdown menu currently set to 'User Define' followed by two empty input boxes separated by a tilde '~'), 'Internal IP Address' (a text input field), and 'Protocol' (a dropdown menu currently set to 'TCP/UDP' followed by an 'Add' button). Below the form is a table titled 'IP/Port Forwarding' with the following columns: 'Item', 'Service Name', 'External Port Range', 'Internal IP Address', 'Protocol', 'State', 'Delete', and 'Edit'. The table contains two rows of data:

Item	Service Name	External Port Range	Internal IP Address	Protocol	State	Delete	Edit
1	Game	6112	10.30.5.112	TCP/UDP	<input type="radio"/> Disable <input checked="" type="radio"/> Enable	Delete	Edit
2	Phone	6670	10.30.5.250	TCP/UDP	<input type="radio"/> Disable <input checked="" type="radio"/> Enable	Delete	Edit

- **Service Name:** Name of the IP/ Port Forwarding service to be added. Enter an appropriate name, i.e. Game for gaming service or Phone for voice call service.
- **External Port Range:** The range of the external port used for the respected service. Select an appropriate range from the drop down list or select **User Define** to set the range manually.

The close-up shows the 'External Port Range' dropdown menu. The menu is open, displaying a list of predefined port ranges and their associated services. The 'User Define' option is selected and highlighted in blue. The list includes:

- User Define
- AIM (5190)
- AOE (47624)
- FTP (21)
- ICUII (23566)
- AIM (5190)
- IP_Phone (6670)
- NetMeeting (1720)
- News (119)
- PPTP (1723)
- QuakeII/III (27960)
- Real-Audio (6970~7170)
- Telnet (23)
- WarCraft (6112)

- **Internal IP Address:** The corresponding IP address of the LAN host used for the respected service. Enter the LAN IP address of the assigned host.
- **Protocol:** The communication protocol of session. Select an appropriate protocol type from the drop down list, either **TCP/UCP**, **TCP** or **UDP** protocol.
- **Add:** Click **Add** to activate the new creation.

- **IP/ Port Forwarding:** The information of the current service available.

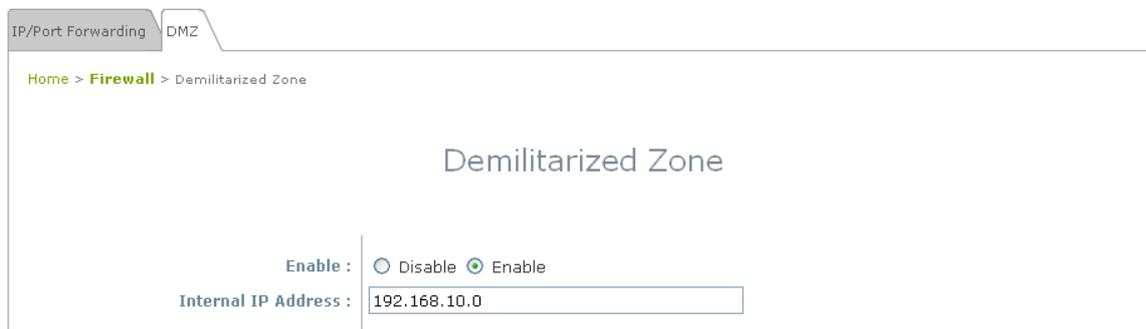
IP/Port Forwarding

Item	Service Name	External Port Range	Internal IP Address	Protocol	State	Delete	Edit
1	Game	6112	10.30.5.112	TCP/UDP	<input type="radio"/> Disable <input checked="" type="radio"/> Enable	Delete	Edit
2	Phone	6670	10.30.5.250	TCP/UDP	<input type="radio"/> Disable <input checked="" type="radio"/> Enable	Delete	Edit

- **External Port Range:** The port range of the external port used for the respected service.
- **Internal IP Address:** The corresponding IP of the internal host used for the respected service.
- **Delete:** Click **Delete** to remove the respected service.
- **Edit:** Click **Edit** to alter the current setting.

Demilitarized Zone

The Demilitarized Zone, DMZ, allows a computer or server to be exposed to the Internet for special purpose, i.e. a web server, where external users can access the location without authentication.



- **Enable:** Check **Enable** button to activate this function, and **Disable** to deactivate.
- **Internal IP Address:** Enter the IP address of the computer or server to be used as DMZ host; only one DMZ host can be activated at any time period.

Utilities

The administrator can maintain the system via this page; **Change Password, Network Utilities, Configuration Save / Restore, System Upgrade, and Reboot.**

The screenshot shows a web interface for system utilities. At the top, there are five main utility buttons: System, Wireless, Firewall, Utilities, and Status. Below these is a navigation bar with tabs for Password, Network Utilities, Config Save Restore, System Upgrade, and Reboot. The 'Utilities' tab is active, and the breadcrumb trail reads 'Home > Utilities > Admin Password'. The main content area is titled 'Change Password' and contains two sections for password management. The first section is for the 'root' user, with fields for 'Old Password', 'New Password', and 'Re-enter New Password'. A red asterisk next to the 'New Password' field indicates a maximum length of 32 characters. The second section is for the 'admin' user, with fields for 'New Password' and 'Re-enter New Password'. At the bottom of the form are three buttons: 'SAVE', 'APPLY', and 'CLEAR'.

System Wireless Firewall Utilities Status

Password Network Utilities Config Save Restore System Upgrade Reboot

Home > Utilities > Admin Password

Change Password

Name : **root**

Old Password : *up to 32 characters

New Password :

Re-enter New Password :

Name : **admin**

New Password :

Re-enter New Password :

SAVE APPLY CLEAR

Change Password

The system supports two management accounts, root and admin. The system manager is assigned with full administrative privileges when logging in with the **root** account where the root manager can manage the system in any respect. However, when the system manager logs in via the **admin** account, only basic maintenance can be performed. Therefore, manager with different accounts will have different levels of privileges such as changing passwords; root manager can change passwords for both root account and admin account, however, admin manager can only maintain its own password. For more information on the respective privileges of these two management accounts, please refer to **Appendix A. System Manager Privileges**.

- **Root account manager:** The root administrator is entitled to change passwords for both root account and admin account.

- **Root Account:** Enter the original password and new password, and then verify the new password in the **Re-enter Password** field. Click **Apply** to activate the new password.

- **Admin Account:** Enter new password, and then verify the new password in the **Re-enter Password** field. Root manager is acting as a superintendent here; thus, entering the old password is not required. Click **Apply** to activate the new password.

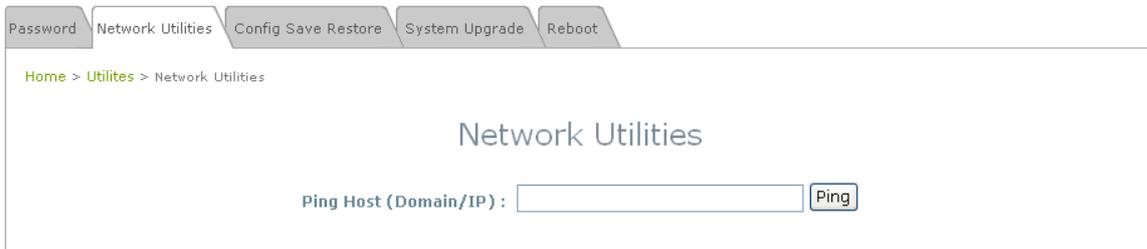
- **Admin Account Manager:** The admin manager can change its respected password. Enter the original password and new password, and then verify the new password in the **Re-enter Password** field. Click **Apply** to activate the new password.

The screenshot shows a web interface for changing the password of the 'admin' user. At the top, there is a navigation menu with tabs for 'Password', 'Network Utilities', 'Config Save Restore', 'System Upgrade', and 'Reboot'. Below the menu, a breadcrumb trail reads 'Home > Utilites > Admin Password'. The main heading is 'Change Password'. The form contains the following fields:

- Name :** admin
- Old Password :** [text input field] *up to 32 characters
- New Password :** [text input field]
- Re-enter New Password :** [text input field]

Network Utilities

The administrator can diagnose the WAN and LAN connectivity via this function.



- **Ping Host (Domain/ IP):** Enter the desired domain name or IP address of the target device for diagnosis purpose, i.e. `www.google.com`, and click ***Ping*** to proceed. The ping result will be shown in the **Result** field.



Configuration Save / Restore

Current settings on the system can be backed up, or previous backed up settings can be restored as well as resetting the system to factory default can be performed via this page.



- **Reset to Default:** Click **Reset** to load the factory default settings of NP726. A pop-up screen will appear to reconfirm the request to restart the system. Click **OK** to proceed, or click **Cancel** to cancel the restart request.



A warning message as displayed below appears during the rebooting period. If turning off the power is necessary, please allow the restart process to be completed before turning off the system.



The **System Overview** page appears upon the completion of reboot.

The screenshot shows the NetComm NP726 web interface. At the top, there is a header with the NetComm logo and the text "NP726 - 802 11g outdoor wireless access point". Below the header, there are five main navigation buttons: System, Wireless, Firewall, Utilities, and Status. The "System Overview" page is selected, showing a breadcrumb trail: Home > Status > System Overview. The main content area is titled "System Overview" and contains two panels: "System" and "Radio Status".

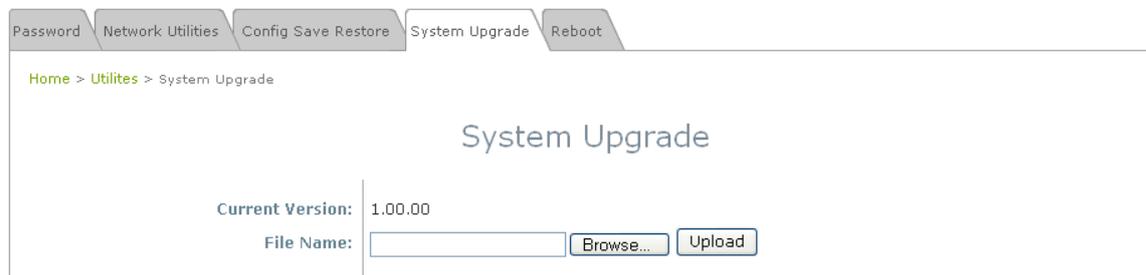
System	
System Name	NP726
Firmware Version	1.00.00
Build Number	1.2-1.1670
Location	Sydney, Australia
Site	EN-E
Device Time	2000/01/01 10:01:50
System Up Time	0 days, 0:01:51
Operating Mode	CPE

Radio Status	
Status	Scanning
SSID	wireless
MAC Address	00:00:00:00:00:00
Channel	12
Signal Strength	0
Security	WPA-PSK

- **Backup Settings:** Click **Save** to save the current system settings to a local disk, i.e. the HDD of a local computer or Compact Disc.
- **Restore Settings:** Click **Browse** to search for a previously saved backup file, and then click **Upload** to restore the settings; the system will be configured to the same settings as specified in the backup file.

System Upgrade

To upgrade the system firmware, click **Browse** to search for the new firmware file, and then click **Apply** to execute the upgrade process.



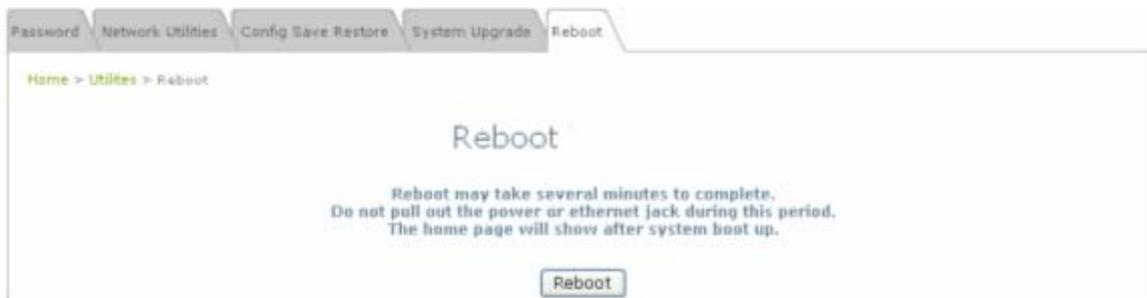
The screenshot shows a web interface for system upgrade. At the top, there are navigation tabs: Password, Network Utilities, Config Save Restore, System Upgrade (selected), and Reboot. Below the tabs, a breadcrumb trail reads "Home > Utilities > System Upgrade". The main heading is "System Upgrade". Below this, the "Current Version:" is displayed as "1.00.00". Underneath, there is a "File Name:" label followed by an empty text input field, a "Browse..." button, and an "Upload" button.

Note:

1. To prevent data loss during firmware upgrade, please back up the current settings before proceeding to firmware upgrade.
2. Please restart the system after the upgrade. Do not interrupt the system, i.e. power on/off, during the upgrading process or the restarting process as this may damage the system.

Reboot

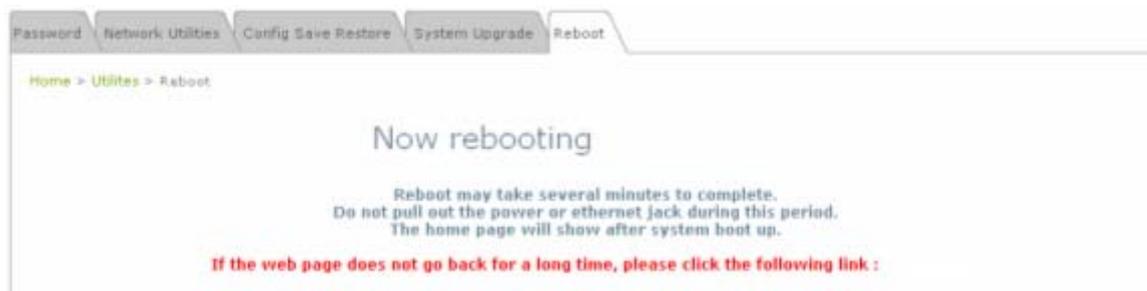
This function allows the administrator to safely restart the NP726. Click **Reboot** to restart the system immediately, and the whole process will take about three minutes to complete.



A pop-up screen appears to confirm the request to restart the system. Click **OK** to proceed, or click **Cancel** to cancel the restart request.



A warning message as displayed below appears during the rebooting period. If turning off the power is necessary, please allow the restart process to be completed before turning off the system.



The **System Overview** appears upon the completion of reboot.

 NP726 - 802 11g outdoor wireless access point [Home](#) [Logout](#) [Help](#)

[System](#) [Wireless](#) [Firewall](#) [Utilities](#) [Status](#)

[System Overview](#) [Event Log](#) [DHCP Lease](#) [UPnP](#)

[Home](#) > [Status](#) > System Overview

System Overview

System

System Name	NP726
Firmware Version	1.00.00
Build Number	1.2-1.1670
Location	Sydney, Australia
Site	EN-E
Device Time	2000/01/01 10:01:50
System Up Time	0 days, 0:01:51
Operating Mode	CPE

Radio Status

Status	Scanning
SSID	wireless
MAC Address	00:00:00:00:00:00
Channel	12
Signal Strength	0
Security	WPA-PSK

Status

Information of current system settings can be overviewed via this page; statuses of **System Overview**, **Event Log**, **DHCP Lease** and **UPnP** are displayed in this interface.

NetComm®
www.netcomm.com.au

NP726 - 802 11g outdoor wireless access point Home Logout Help

System Wireless Firewall Utilities Status

System Overview Event Log DHCP Lease UPnP

Home > Status > System Overview

System Overview

System

System Name	NP726
Firmware Version	1.00.00
Build Number	1.2-1.1670
Location	Sydney, Australia
Site	EN-E
Device Time	2000/01/01 10:01:50
System Up Time	0 days, 0:01:51
Operating Mode	CPE

Radio Status

Status	Scanning
SSID	wireless
MAC Address	00:00:00:00:00:00
Channel	12
Signal Strength	0
Security	WPA-PSK

LAN Interface

MAC Address	00:60:64:27:16:5A
IP Address	192.168.10.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled

WAN Interface

Mode	Static
MAC Address	00:60:64:27:16:5B
IP Address	192.168.26.1
Subnet Mask	255.255.255.0
Gateway	192.168.26.254
Bandwidth	Down: Unlimited UP: Unlimited

System Overview

Detailed information on **System**, **Radio Status**, **LAN Interface**, and **WAN Interface** can be reviewed via this page.

The screenshot displays the 'System Overview' page with the following data:

System	
System Name	NP726
Firmware Version	1.00.00
Build Number	1.2-1.1670
Location	Sydney, Australia
Site	EN-E
Device Time	2000/01/01 10:01:50
System Up Time	0 days, 0:01:51
Operating Mode	CPE

Radio Status	
Status	Scanning
SSID	wireless
MAC Address	00:00:00:00:00:00
Channel	12
Signal Strength	0
Security	WPA-PSK

LAN Interface	
MAC Address	00:60:64:27:16:5A
IP Address	192.168.10.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled

WAN Interface	
Mode	Static
MAC Address	00:60:64:27:16:5B
IP Address	192.168.26.1
Subnet Mask	255.255.255.0
Gateway	192.168.26.254
Bandwidth	Down: Unlimited UP: Unlimited

- **System:** Display the information of the system.
 - **System Name:** The name of the system.
 - **Firmware Version:** The current firmware version installed.
 - **Build Number:** The build number of the firmware installed.
 - **Location:** The reminding note on the geographical location of the system. For more information, please refer to **Section 4.1.1. System Information**.
 - **Site:** Indicate the region of the system was built for, i.e. EN-A for the US, EN-E for Europe, and EN-J for Japan.
 - **Device Time:** The current time of the system.
 - **System Up Time:** The time period that the system has been in service since last boot-up.
 - **Operating Mode:** The mode currently in service.

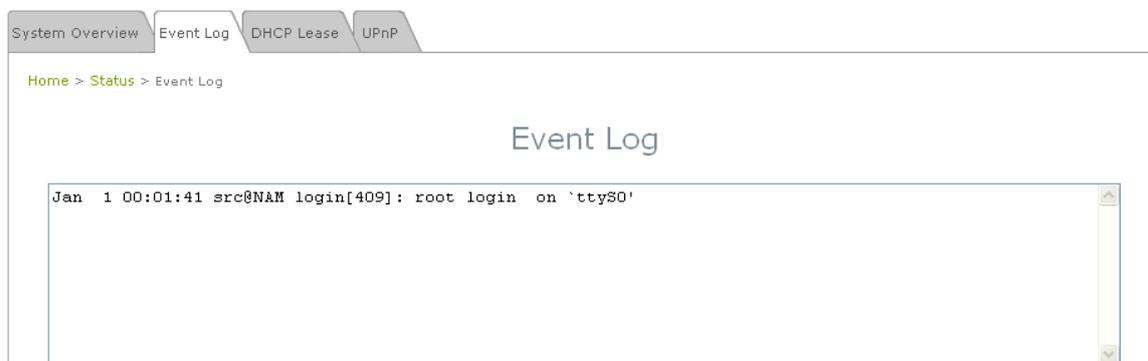
- **Radio Status:** The physical connection status of the system.
 - **Status:** The connection status of the system.
 - **SSID:** The SSID of the AP the system is associating with.
 - **MAC Address:** The MAC address of the AP the system is associating with.
 - **Channel:** The channel number of the AP the system is associating with.
 - **Signal Strength:** The signal strength of the associated AP. The administrator can configure the encryption settings via this page, or disregard the encryption by selecting **None** from the drop down list.
 - **Security:** The encryption settings.

- **LAN Interface:** Display the information of the LAN connection.
 - **MAC Address:** The MAC address of the LAN port.
 - **IP Address:** The IP address of the LAN port.
 - **Subnet Mask:** The Subnet Mask of the LAN port.
 - **DHCP Server:** Indicate whether the DHCP server function is enabled.

- **WAN Status:** Display the information of the WAN connection.
 - **Mode:** Indicate either Static or DHCP mode.
 - **MAC Address:** The MAC address of the WAN port.
 - **IP Address:** The IP address of the WAN port.
 - **Subnet Mask:** The Subnet Mask of the WAN port.
 - **Gateway:** The gateway IP address of the WAN port.
 - **Bandwidth:** Indicate the limits of data transmission for both upload and download.

Event Log

All the system events are shown here.

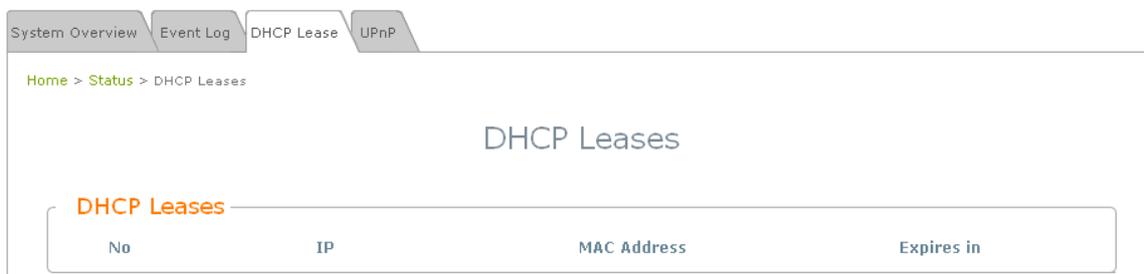


Note: As the Event Log is stored in RAM, it will be refreshed after the system is restarted. The system also supports a Syslog function which can report the event to an external Syslog server.

- **Date/ Time:** The date and time when the event occurred.
- **Hostname:** The name of the host which records the event. It helps the administrator identify the source of the reported events. For more information, please refer to **Section 4.1.4 Management Service**.
- **Process name (with square brackets):** Indicate the process with which the specific event is associated.
- **Description:** Description of the event.

DHCP Leases

Information on DHCP leases is stated in this page where administrator can easily search for LAN IP/MAC address binding information and the lease period.

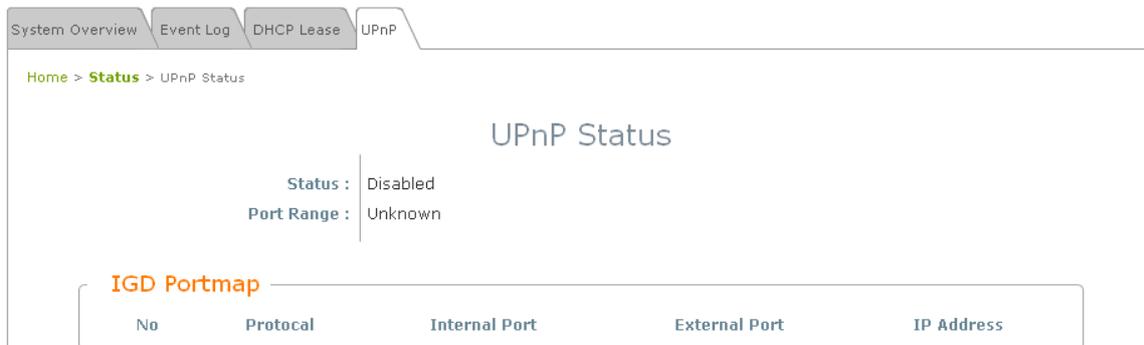


No	IP	MAC Address	Expires in
----	----	-------------	------------

- **No:** Item number of the respected LAN IP leased.
- **IP:** The IP address assigned by DHCP server to the specific LAN device.
- **MAC Address:** The MAC address of the LAN device.
- **Expires in:** The expiration time of the respected leased IP address.

UPnP

Devices within LAN can communicate with hosts at WAN via the mapped ports without performing manual configuration by the administrator when the UPnP, Universal Plug-and-Play, feature is enabled; the device using this service shall also support UPnP function. All devices currently using this service will be listed in this page.



System Overview | Event Log | DHCP Lease | UPnP

Home > Status > UPnP Status

UPnP Status

Status : Disabled
Port Range : Unknown

IGD Portmap

No	Protocol	Internal Port	External Port	IP Address
----	----------	---------------	---------------	------------

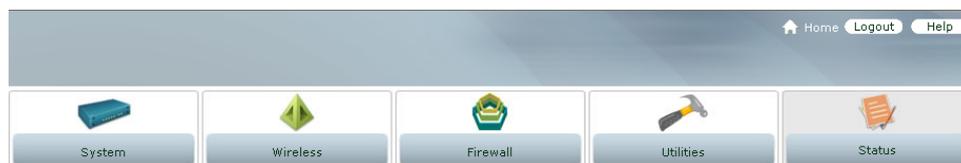
- **Status:** Indicate the current status of UPnP function, either enabled or disabled.
- **Port Range:** Indicate the port range used for UPnP function.
- **IGD Portmap:**
 - **No:** The item number of the respected UPnP device.
 - **Protocol:** Indicate the Protocol used by the respected UPnP device.
 - **Internal Port:** The internal port number of the respected UPnP device.
 - **External Port:** The mapped external port number of the system.
 - **IP Address:** The IP address of the respected UPnP device.

Note: For more information on UPnP configuration, please refer to **Section 4.1.4-Management Services**.

Online Help

➤ Online Help:

There is a **Help** button allocated on the top right hand corner. Click **Help** to enter the **Online Help** page, and then click the respected hyperlink on the topic to obtain further information.



Status

Status > System Overview

This section provides an overview of the system for the administrator.

System's overall status, for individual setting/status, we need check them in each configuration page.

The description of the table is as follows:

Item	Description
Firmware Version	The present firmware version.
System Name	The system name. The default.
Device Time	The network time server that the system is set to align.
System Up Time	The system time is shown as the local time.
LAN Interface	MAC Address The MAC address of LAN interface
	IP Address The IP address of the LAN interface
	Subnet Mask The Subnet Mask of the LAN interface

Chapter 5. AP Mode Configuration

When AP mode is activated, the system can be configured as an Access Point or Access Point/Repeater at the same time. This section provides information in configuring the AP mode with graphical illustrations. NP726 provides functions as stated below where they can be configured via a user-friendly web based interface.

OPTION	System	Wireless	Utilities	Status
FUNCTION	System Information	General Settings	Change Password	System Overview
	Operating Mode	Advanced Wireless Settings	Network Utilities	Associate Client Status
	Network Settings	Security Settings	Configuration Save / Restore	Repeater Information
	Management Services	Repeater Settings	System Upgrade	Event Log
		Access Control Settings	Reboot	
		Site Survey		

Table 5-1: AP Mode Functions

NetComm
www.netcomm.com.au

NP726 - 802 11g outdoor wireless access point Home Logout Help

System Wireless Utilities Status

System Overview Clients Repeater Event Log

Home > Status > System Overview

System Overview

System

System Name	NP726
Firmware Version	1.00.00
Build Number	1.2-1.1670
Location	Sydney, Australia
Site	EN-E
Device Time	2000/01/01 10:03:03
System Up Time	0 days, 0:03:03
Operating Mode	AP

Radio Status

MAC Address	00:60:64:27:16:5B
Band	802.11b+g
Channel	1
TX Power	Highest

LAN Interface

MAC Address	00:60:64:27:16:5A
IP Address	192.168.26.1
Subnet Mask	255.255.255.0
Gateway	192.168.26.254

AP Status

Profile Name	BSSID	ESSID	Security Type	Online Clients
VAP-1	00:60:64:27:16:5B	NetComm Wi...	None	0

Figure 5-1: AP Mode Main Page

System

This section provides information in configuring the following functions: **System Information**, **Operating Mode**, **Network Settings**, and **Management Services**.

The screenshot shows a web interface for configuring system information. At the top, there are four tabs: "System Information" (selected), "Operating Mode", "Network", and "Management Services". Below the tabs, a breadcrumb trail reads "Home > System > System Information". The main heading is "System Information".

Under "System Information", there are three text input fields labeled "Name:", "Description:", and "Location:". Below these is a section titled "Time".

The "Time" section includes:

- "Device Time:" with the value "2000/01/01 00:05:47".
- "Time Zone:" with a dropdown menu showing "(GMT+12:00)Auckland, Wellington".
- "Synchronization:" with two radio buttons: "NTP Enabled" (unselected) and "Set Date & Time" (selected).
- "Set Date:" with three dropdown menus for "Year", "Month", and "Day".
- "Set Time:" with three dropdown menus for "Hour", "Min", and "Sec".

At the bottom of the form are three buttons: "SAVE", "APPLY", and "CLEAR".

Note: System restart is required when a reminding message appears after clicking **APPLY** button; all settings entered and saved will take effect only upon system restart.

System Information

The administrator can later obtain the geographical location of the system via the information configured here. System time can also be configured via this page where manual setting and NTP server configuration are both supported.

System Information

Home > System > System Information

Name:

Description:

Location:

Time

Device Time: 2000/01/01 00:05:47

Time Zone: (GMT+12:00)Auckland,Wellington

Synchronization: NTP Enabled Set Date & Time

Set Date: --- Year -- Month -- Day

Set Time: -- Hour -- Min -- Sec

- **System Information:** For maintenance purpose, it is recommended to have the following information stated as clear as possible.
 - **Name:** Name the system. Enter a desired name or use the default.
 - **Description:** Further information of the system. Enter further information as an identifier.
 - **Location:** Enter related geographical location information of the system; administrator/manager will be able to locate the system easily.
- **Time:**
 - **Device Time:** Display the current time of the system.
 - **Time Zone:** Select an appropriate time zone from the drop down list for the system.
 - **Synchronization:** Set the system time either via synchronization with a NTP server or manual configuration.

- **NTP Enabled:** Enable Network Time Protocol, NTP, to synchronize the system time with NTP server. Enter IP address or domain name of the NTP server to be associated with; at least one NTP server's information must be provided.

Synchronization : NTP Enabled Set Date & Time

NTP Server 1 :

NTP Server 2 :

- **Set Date & Time:** Enable Set Date & Time; the system time can be configured manually.

Synchronization : NTP Enabled Set Date & Time

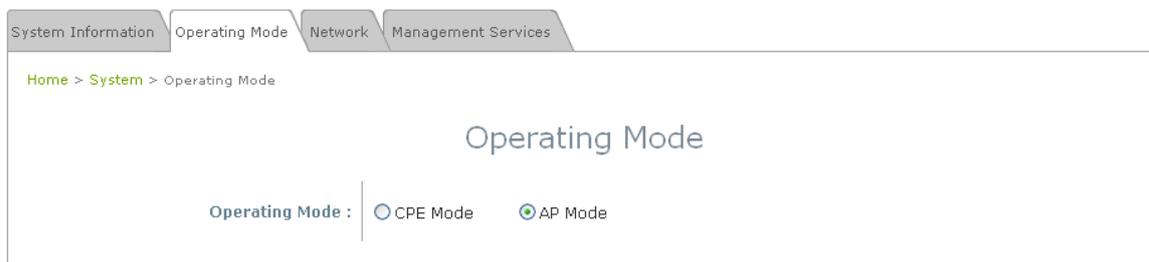
Set Date : Year Month Day

Set Time : Hour Min Sec

- **Set Date:** Select the appropriate **Year**, **Month**, and **Day** from the drop down list.
- **Set Time:** Select the appropriate **Hour**, **Min**, and **Sec** from the drop down list.

Operating Mode

NP726 supports two operation modes; CPE mode and AP mode. The administrator can set the desired mode via this page, and then configure the system according to their deployment needs.



- **CPE Mode:** Check **CPE Mode** button to enable CPE mode, and then click **Apply** to activate the setting.
- **AP Mode:** Check **AP Mode** button to enable AP Mode, and then click **Apply** to activate the setting.

Note: The system immediately asks for a reboot right after clicking **Apply** in order to activate the mode selected. However, the system does not ask for a reboot right after clicking **Save**; the mode selected will take effect upon next reboot or power cycling the system.

Network Settings

LAN settings can be configured via this page.

The screenshot shows the 'Network Settings' page in the NP726 user interface. The page has a breadcrumb trail: Home > System > Network. The settings are as follows:

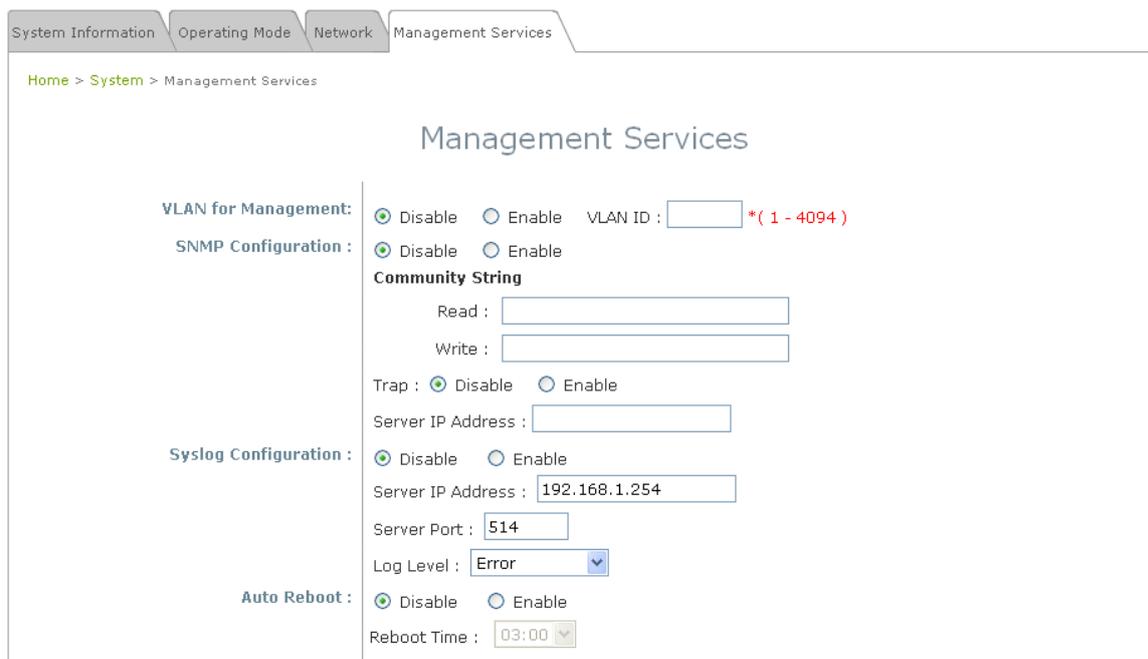
Mode :	<input checked="" type="radio"/> Static	<input type="radio"/> DHCP
IP Address :	<input type="text" value="192.168.26.1"/>	*
Netmask :	<input type="text" value="255.255.255.0"/>	*
Gateway :	<input type="text" value="192.168.26.254"/>	*
Primary DNS Server :	<input type="text" value="192.168.26.254"/>	*
Secondary DNS Server :	<input type="text"/>	
Layer2 STP :	<input checked="" type="radio"/> Disable	<input type="radio"/> Enable

- **Mode:** Check either Static or DHCP button as desired to set up the system IP of LAN port.
 - **Static:** The administrator can manually set up the LAN IP address when static IP is available/preferred.

This is an identical screenshot of the 'Network Settings' page as shown above.

- **IP Address:** The IP address of the LAN port.
 - **Netmask:** The Subnet mask of the LAN port.
 - **Gateway:** The Gateway address of the LAN port.
 - **Primary DNS Server:** The IP address of the primary DNS server.
 - **Secondary DNS Server:** The IP address of the substitute DNS server.
- **DHCP:** This configuration type is applicable when the NP726 is connected to a network with the presence of a DHCP server; all related IP information will be provided by the DHCP server automatically.
- **Layer2 STP:** If the device is connected to bridge networks, this option needs to be enabled to prevent loop.
 - **Management Services**

The system supports **VLAN**, **SNMP**, **Syslog**, and **Auto Reboot** functions to facilitate management. The system manager can configure the respected function via this page.



- **VLAN for Management:** By enabling this function, management traffic from the device is tagged with a VLAN ID. Enter a value ranged from 1 to 4094 for the VLAN ID if the option is enabled.
- **SNMP Configuration:** By enabling SNMP function, the administrator can obtain the system information remotely.



- **Enable/ Disable:** Check **Enable** button to activate this function or **Disable** to deactivate this service.
- **Community String:** The community string is required when accessing the Management Information Base, MIB.
 - **Read:** Enter the community string to access the MIB with Read privilege.
 - **Write:** Enter the community string to access the MIB with Write privilege.
- **Trap:** Events on cold start, Interface up & down, and association & disassociation can be reported via this function to an assigned server.
 - **Enable/ Disable:** Check **Enable** button to activate this function or **Disable** to deactivate this function.
 - **Server IP Address:** Enter the IP address of the assigned server to receive the trap report.

- **Syslog Configuration:** Event can be reported to an external server for record keeping and management via this function.

Syslog Configuration : Disable Enable
 Server IP Address :
 Server Port :
 Log Level :

- **Enable/ Disable:** Check **Enable** button to activate this function or **Disable** to deactivate this function.
 - **Server IP:** The IP address of the Syslog server to receive the event report.
 - **Server Port:** The port number of the Syslog server.
 - **Log Level:** Assign the type of the severity level on the events that will be reported to the external server. Select the desired type from the drop down list.
- **Auto Reboot:** The system can be functioning in a healthier state when this service is enabled.
 - **Enable/ Disable:** Check **Enable** button to activate this function or **Disable** to deactivate this function.
 - **Reboot Time:** Select an appropriate time from the drop down list. It is suggested to have the time set at an off-peak period when reboot has minimum impacts to online users since all users in the network will be disconnected during reboot.

Auto Reboot : Disable Enable
 Reboot Time :

Wireless

The system manager can configure related wireless settings, **General Settings**, **Advanced Settings**, **Security Settings**, **Repeater Settings**, **Access Control Settings**, and **Site Survey** via this page.

The screenshot shows a web interface for configuring wireless settings. At the top, there are tabs for 'General', 'Advanced', 'Security', 'Repeater', 'Access Control', and 'Site Survey'. Below the tabs, a breadcrumb trail reads 'Home > Wireless > General'. The main heading is 'General Settings'. The configuration fields are as follows:

- Band:** 802.11b+802.11g (dropdown menu)
- SSID:** NetComm Wireless (text input)
- Short Preamble:** Disable Enable
- Channel:** 1 (dropdown menu)
- Max Transmit Rate:** Auto (dropdown menu)
- Transmit Power:** Highest (dropdown menu)
- ACK Timeout:** 0 (text input) with a red note: *(0 - 255, 0:Auto, Unit:4 micro seconds)

At the bottom of the form, there are three yellow buttons: 'SAVE', 'APPLY', and 'CLEAR'.

General Settings

NP726 supports 802.11b, 802.11g, and 802.11b/g mode. Select the desired mode and proceed further with information required respectively to set up the system.

General Settings

Band : 802.11b+802.11g

SSID : NetComm Wireless

Short Preamble : Disable Enable

Channel : 1

Max Transmit Rate : Auto

Transmit Power : Highest

ACK Timeout : 0 *(0 - 255, 0:Auto, Unit:4 micro seconds)

SAVE APPLY CLEAR

- **Band:** Select an appropriate wireless band, or disable if the service is not required; bands available are 802.11b, 802.11g, and 802.11b+802.11g.
- **SSID:** Assign Service Set ID for the wireless system.
- **Short Preamble:** The short preamble provides 56-bit Synchronization field to improve WLAN transmission efficiency. Check **Enable** button for using Short Preamble, and **Disable** for using the Long Preamble, 128-bit Synchronization field, option.
- **Max Transmit Rate:** The maximum wireless transmitting rate. Select the desired rate from the drop down list; the options are auto, or values ranging from 1 to 54Mbps for 802.11g and 802.11 b/g modes, or 1 to 11Mbps for 802.11b mode. The AP uses the highest possible rate when **Auto** is selected.
- **Transmit Power:** The wireless transmitting power of the system. Select among **Auto**, **Lowest**, **Low**, **Medium**, **High**, and **Highest** from the drop down list.
- **ACK Timeout:** Setup the value of ACK timeout such as the number from 0 to 255, or units in micro seconds.

Advanced Wireless Settings

The administrator can further tune up wireless LAN via this page.

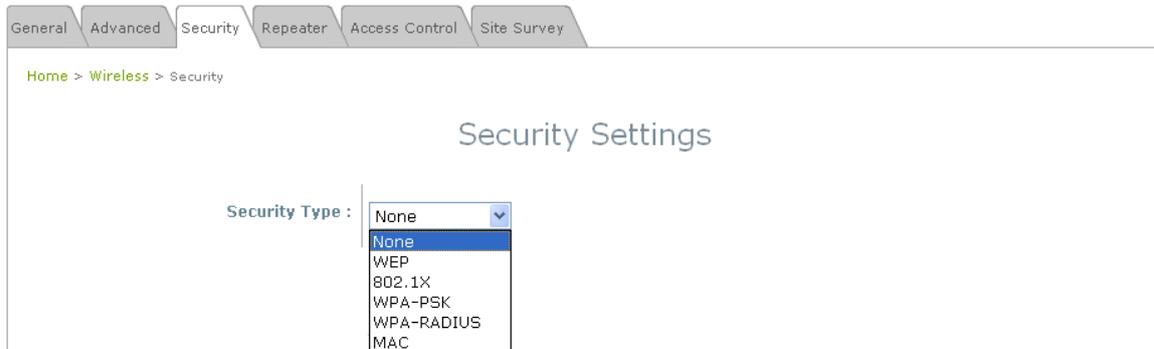
The screenshot shows a web interface with a navigation menu at the top containing tabs for General, Advanced, Security, Repeater, Access Control, and Site Survey. Below the menu is a breadcrumb trail: Home > Wireless > Advanced. The main content area is titled "Advanced Wireless Settings" and contains the following configuration options:

Beacon Interval :	<input type="text" value="100"/>	(25-500ms)
RTS Threshold :	<input type="text" value="2346"/>	(1-2346)
Fragment Threshold :	<input type="text" value="2346"/>	(256-2346)
Broadcast SSID :	<input type="radio"/> Disable <input checked="" type="radio"/> Enable	
Station Isolation :	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	
IAPP :	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	
802.11g Protection :	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	

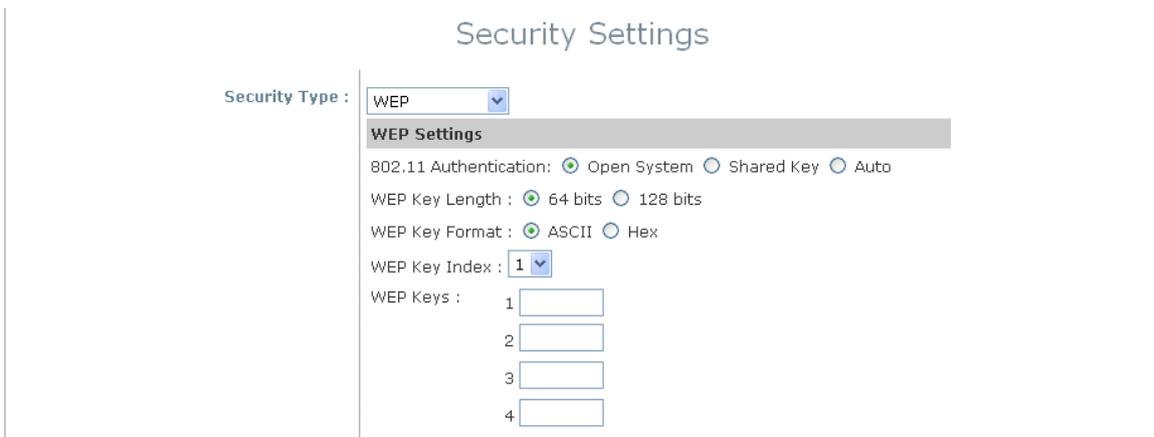
- **Beacon Interval:** The duration of time for the system to transmit beacon frames. Enter a value between 25 and 500ms; the default value is 100 milliseconds.
- **RTS Threshold:** Tuning the Request to Send, RTS, threshold will help the system control its access to medium and alleviate the hidden node problem. Enter a value ranging from 1 to 2346.
- **Fragmentation Threshold:** The value specifies the maximum size of packet allowed before data is fragmented into multiple packets. Please use this value to tune the wireless connection if lots of retransmission happens. Enter a value ranging from 256 to 2346.
- **Broadcast SSID:** When this function is enabled, devices within the valid coverage range can receive the system's SSID.
- **Station Isolation:** When this function is enabled, devices associated with the system can not communicate with each other.
- **IAPP:** IAPP, Inter-Access Point Protocol, allows messages to be exchanged between APs in order to provide a faster roaming for users when users are moving across APs. Select **Enable** radio button to activate this function.
- **802.11g Protection:** Associated stations with 802.11g access will be benefited from enabling this option since their transmission rate will not be affected with surrounding existence of 802.11b stations.

Security Settings

The system supports several wireless security types, namely WEP, 802.1X, WPA-PSK, WPA-RADIUS, and MAC. The administrator can configure the wireless settings via this page or disregard the setting by selecting **None** from the drop down list.



- **None:** Authentication is not required and data is not encrypted during transmission when this option is selected.
- **WEP:** WEP, Wired Equivalent Privacy, is a data encryption mechanism based on a 64-bit or 128-bit shared key. Select **WEP** as the security type from the drop down list as desired.



- **802.11 Authentication:** Enable the desired option among **Open System**, **Shared Key**, or **Auto**.
- **WEP Key Length:** Check on the respected button to enable either **64-bit** or **128-bit** key length.
- **WEP Key Format:** Check on the respected button to enable either **ASCII** or **Hex** format for the WEP key.
- **WEP Key Index:** The key index selected is used as the key during data transmission. Select the desired key index from the drop down list.
- **WEP Key:** Provide WEP key value; the system supports up to 4 sets of WEP keys.

- **802.1X:** When **802.1X Authentication** is enabled, please refer to the following Dynamic WEP and RADIUS settings to complete the configuration.

Security Settings

Security Type :

Dynamic WEP Settings

Dynamic WEP: Disable Enable

WEP Key Length: 64 bits 128 bits

Rekeying Period: second(s)

Primary RADIUS Server Settings

Host: *(Domain Name / IP Address)

Authentication Port:

Secret Key:

Accounting Service: Disable Enable

Accounting Port:

- **Dynamic WEP Settings:**
 - **Dynamic WEP Key:** By enabling this function, the system will automatically generate WEP keys for encryption.
 - **WEK Key Length:** Check on the respected radio button to enable either 64 bits or 128 bits key length.
 - **Rekeying Period:** The time interval the WEP key will then be updated; the unit is in second.
 - **Primary RADIUS Server Settings:**
 - **Host:** Enter the IP address or Domain Name of the RADIUS server.
 - **Authentication Port:** The port number used by RADIUS server. Use the default, 1812, or enter port number specified.
 - **Secret Key:** The secret key for the system to communicate with RADIUS server.
- **WPA-PSK:** The data transmission between the AP and associated clients will be encrypted by WPA Pre-Shared-Key.

Security Settings

Security Type :

WPA Settings

Cipher Suite :

Pre-shared Key Type : PSK(Hex) *(64 chars)

Passphrase *(8 - 63 chars)

Pre-shared Key :

Group Key Update Period: second(s)

- **Cipher Suite:** Select an encryption method to be used from the drop down list, either **TKIP**, **AES (WAP2)**, or **Mixed**.
- **Pre-shared Key Type:** Check on the respected button to enable pre-shared key type, either PSK (Hex)

- or Passphrase.
 - **Pre-shared Key:** Enter the value for pre-shared key; the format of the key value shall follow the key type selected.
 - **Group Key Update Period:** The time interval for the Group Key to be renewed; the unit is in second.
- **WPA-RADIUS:** The RADIUS authentication and data encryption will be both enabled if this option is selected.

Security Settings

Security Type :

WPA Settings

Cipher Suite :

Group Key Update Period: second(s)

Primary RADIUS Server Settings

Host: *(Domain Name / IP Address)

Authentication Port:

Secret Key:

Accounting Service: Disable Enable

Accounting Port:

- **WPA Settings:**
 - **Cipher Suite:** Select an encryption method to be used from the drop down list, i.e. TKIP (WPA), AES (WPA), TKIP(WAP2), AES (WAP2), or Mixed.
 - **Group Key Update Period:** The time interval the Group Key will then be renewed; unit is in second.
 - **Primary RADIUS Server Settings:**
 - **Host:** Enter the IP address or Domain Name of the RADIUS server.
 - **Authentication Port:** The port number used by RADIUS server. Use the default, 1812, or enter port number specified.
 - **Secret Key:** The secret key for the system to communicate with RADIUS server.
- **MAC:** The MAC authentication can be selected by providing the following information.

Security Settings

Security Type :

Primary RADIUS Server Settings

Host: *(Domain Name / IP Address)

Authentication Port:

Secret Key:

- **Primary RADIUS Server Settings:**
 - **Host:** Enter the IP address or Domain Name of the RADIUS server.

- **Authentication Port:** The port number used by RADIUS server. Use the default, 1812, or enter port number specified.
- **Secret Key:** The secret key for the system to communicate with RADIUS server.

Repeater Settings

The system can serve as an Access Point, a Repeater, or an Access Point with Repeater depending on deployment needs. Select the desired mode from the drop down list, **Repeater Type**, and proceed with respected settings.

The screenshot shows the 'Repeater Settings' page in a web interface. At the top, there are tabs for 'General', 'Advanced', 'Security', 'Repeater', 'Access Control', and 'Site Survey'. Below the tabs, a breadcrumb trail reads 'Home > Wireless > Repeater Config'. The main heading is 'Repeater Settings'. A dropdown menu for 'Repeater Type' is set to 'None'.

- **None:** When **None** is selected, the system is acting as an Access Point only; therefore, no further setting on the Repeater tab is required.
- **WDS:** When **WDS** is selected, the system is acting as an Access Point with WDS Repeater.

The screenshot shows the 'Repeater Settings' page with 'Repeater Type' set to 'WDS'. Below the dropdown, there is a 'MAC:' input field with an 'Add' button. A table lists WDS peers with columns for 'Item', 'MAC Address', 'Enable', and 'Delete'. Below the table, there is a 'Security type' dropdown set to 'WEP', and a group of fields for 'WEP Key Length' (set to 128bits), 'WEP Key Format' (set to ASCII), and 'WEP Key' (set to 123456789abcd).

Item	MAC Address	Enable	Delete
1	AA:BB:CC:DD:EE:FF	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	11:22:33:44:55:66	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	BB:CC:DD:EE:FF:AA	<input type="checkbox"/>	<input type="checkbox"/>
4			
5	DD:EE:FF:AA:BB:CC	<input type="checkbox"/>	<input type="checkbox"/>
6	EE:FF:AA:BB:CC:DD	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7			
8			

- **MAC:** Enter the MAC address of the WDS peer. Click **Add** to add it into the list.
- **MAC Address:** Indicate the MAC address of the WDS peer.
- **Enable:** Check **Enable** button to activate the respected WDS link.
- **Delete:** Check **Delete** button, and click **Delete** to remove the respected WDS peer from the list.
- **Security Type:** Configure an appropriate security type for the WDS link, either **None** or **WEP**; the type needs to be the same as that configured on WDS peer.
 - **WEP Key Length:** Select the key length required from the drop down list, either 64 bits or 128 bits.
 - **WEP Key Format:** Select the key format required from the drop down list, either *ASCII* or *Hex* format.
 - **WEP Key:** Provide the WEP key value. The key value should follow the selected Key Format.

- **Universal Repeater:** Please provide the SSID of upper-bound AP and select security type (None, WEP, or WPA-PSK). Site-survey tool will assist in this regard to provide necessary information.

- **The SSID Upper-Bound AP:** Specify the SSID of the upper-bound AP the system will assist to extend its wireless service coverage.
- **Security Type:** Select the security type used by upper-bound AP, either WEP or WAP-PSK. The security settings should follow the configuration of the upper-bound AP.
 - **WEP:** IF WEP is the security type used by upper-bound AP, the system will need to be configured with the same settings acquired from the upper-bound AP.

- **WPA-PSK:** IF WPA-PSK is the security type used by upper-bound AP, the system will need to be configured with the same settings acquired from the upper-bound AP.

Repeater Settings

Repeater Type:

The SSID of Upper-Bound AP :

Security Type :

Cipher Suite :

Pre-shared Key Type : PSK(Hex) *(64 chars)
 Passphrase *(8 - 63 chars)

Pre-shared Key :

Access Control Settings

The administrator can restrict the wireless access based on clients' MAC addresses.

The screenshot shows the 'Access Control Settings' page. At the top, there are tabs for 'General', 'Advanced', 'Security', 'Repeater', 'Access Control', and 'Site Survey'. Below the tabs, a breadcrumb trail reads 'Home > Wireless > Access Control'. The main heading is 'Access Control Settings'. Underneath, there is a section titled 'Access Control List' with a dropdown menu for 'Access Control Type' set to 'Disable'.

- **Access Control Type - Disable:**

When **Disable** is selected, there is no restriction for wireless clients to access the system.

- **Access Control Type - Allow List:**

With this selection, only the devices (represented by their MAC addresses) stated in the **Allow List** are granted with access to the system. The device can temporarily be denied for service by checking the respected **Disable** button manually.

The screenshot shows the 'Access Control Settings' page with 'Access Control Type' set to 'Allow List'. Below the dropdown, there is a table with three rows. Each row has a 'No.' column, a 'MAC Address' column with an input field, and a 'State' column with 'Disable' and 'Enable' radio buttons. The 'Disable' radio button is selected for all three rows.

No.	MAC Address	State
1	<input type="text"/>	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
2	<input type="text"/>	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
3	<input type="text"/>	<input checked="" type="radio"/> Disable <input type="radio"/> Enable

- **MAC Address:** Enter the MAC address of the respected device to be granted for access.
- **Status:** Check **Disable** button to deny the respected device to access the system, or check **Enable** button to grant the access.

- **Access Control Type - Deny List:**

All devices other than those stated in the **Deny List** are granted with access to the system. The access-prohibited device can temporarily be granted with access by checking the respected **Disable** button manually.

The screenshot shows the 'Access Control Settings' page with 'Access Control Type' set to 'Deny List'. Below the dropdown, there is a table with three rows. Each row has a 'No.' column, a 'MAC Address' column with an input field, and a 'State' column with 'Disable' and 'Enable' radio buttons. The 'Disable' radio button is selected for all three rows.

No.	MAC Address	State
1	<input type="text"/>	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
2	<input type="text"/>	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
3	<input type="text"/>	<input checked="" type="radio"/> Disable <input type="radio"/> Enable

- **MAC Address:** Enter the MAC address of the respected device to be denied for access.
- **Status:** Check **Disable** button to grant access to the respected device, or check **Enable** button to prohibit the device from accessing the system.

Site Survey

If Universal Repeater function is enabled, Site Survey tool is enabled to scan surrounding available APs. The system manager can then select an appropriate/desired AP to be connected to extend its wireless service coverage.



Figure 5-2-6-1: Site Survey- when repeater function is disabled.

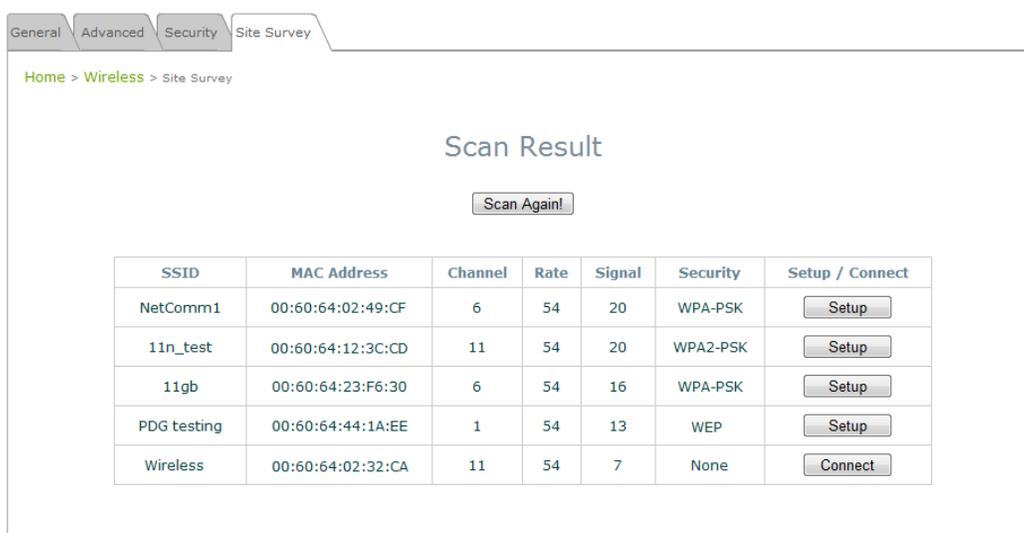


Figure 5-2-6-2: Site Survey- when repeater function is enabled.

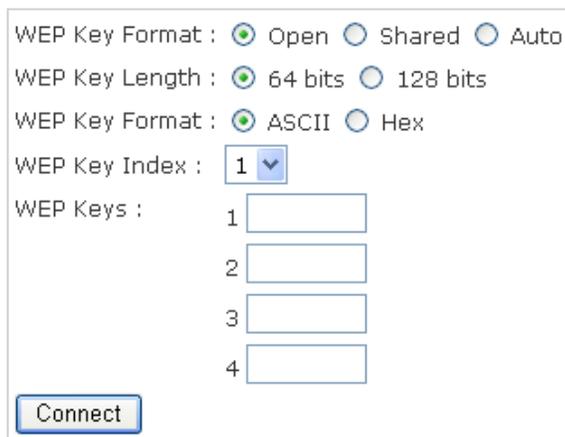
- **SSID:** Service Set ID of the AP found around the system.
- **MAC Address:** MAC address of the respected AP.
- **Channel:** The channel number currently used by the respective AP.
- **Rate:** The transmitting rate of the respected AP.
- **Signal:** The signal strength of the respected AP.
- **Security:** Security type enabled by the respected AP.
- **Setup/ Connect:**
 - **Connect:** If security type is none, click **Connect** to associate with the respected AP; no further configuration is required.

Wireless	00:60:64:02:32:CA	11	54	7	None	Connect
----------	-------------------	----	----	---	------	---------

- **Setup:** If security type is present, click **Setup** to configure settings to associate with the respected AP.
 - **WEP:** Click **Setup** to configure the WEP setting required by to-be-associated target AP.

PDG testing	00:60:64:44:1A:EE	1	54	13	WEP	Setup
-------------	-------------------	---	----	----	-----	-------

The following interface will then appear at the bottom of the screen and please provide the same settings from to-be-associated target AP.

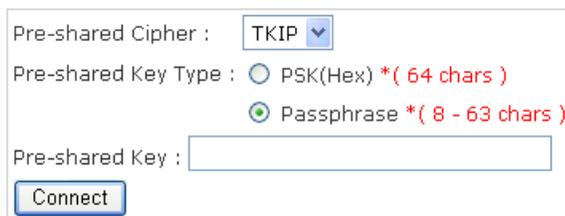


WEP Key Format : Open Shared Auto
 WEP Key Length : 64 bits 128 bits
 WEP Key Format : ASCII Hex
 WEP Key Index : 1 ▾
 WEP Keys :
 1
 2
 3
 4
 Connect

- **WPA-PSK:** Click **Setup** to configure the WPA-PSK setting required by to-be-associated target AP.

NetComm1	00:60:64:02:49:CF	6	54	20	WPA-PSK	Setup
----------	-------------------	---	----	----	---------	-------

The following interface will then appear at the bottom of the screen and please provide the same settings from to-be-associated target AP.



Pre-shared Cipher : TKIP ▾
 Pre-shared Key Type : PSK(Hex) *(64 chars)
 Passphrase *(8 - 63 chars)
 Pre-shared Key :
 Connect

Note: The detailed information of AP displayed in **Figure 5-2-6-2** is for example only. Actual shown data of APs available to the system shall depend on the actual network environment.

Utilities

The administrator can maintain the system via this page: **Change Password, Network Utilities, Configuration Save & Restore, System Upgrade, and Reboot.**



The screenshot displays the 'Utilities' section of a web interface. At the top, there are four main navigation buttons: 'System' (with a router icon), 'Wireless' (with a green triangle icon), 'Utilities' (with a hammer icon), and 'Status' (with a document icon). Below these, a secondary row of tabs includes 'Password', 'Network Utilities', 'Config Save Restore', 'System Upgrade', and 'Reboot'. The 'Utilities' tab is active, leading to a page titled 'Change Password'. The breadcrumb trail shows 'Home > Utilities > Admin Password'. The form contains the following fields and controls:

- Name :** root
- Old Password :** *up to 32 characters
- New Password :**
- Re-enter New Password :**

At the bottom of the form are three buttons: **SAVE**, **APPLY**, and **CLEAR**.

Change Password

The administrator can change password via this page. Enter the original password and new password, and then verify the new password in the **Re-enter New Password** field. Click **Apply** to activate the new password.



The screenshot shows a web management interface with a navigation menu at the top containing 'Password', 'Network Utilities', 'Config Save Restore', 'System Upgrade', and 'Reboot'. Below the menu is a breadcrumb trail: 'Home > Utilities > Admin Password'. The main content area is titled 'Change Password' and contains the following fields:

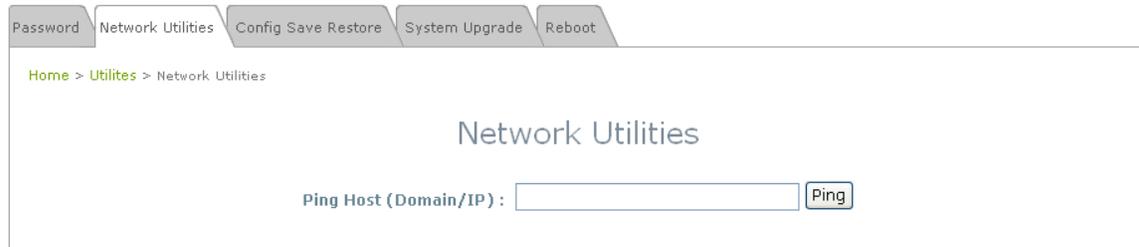
- Name : root
- Old Password : *up to 32 characters
- New Password :
- Re-enter New Password :

At the bottom of the form are three buttons: 'SAVE', 'APPLY', and 'CLEAR'.

Note: There is only one administrator account available for AP mode, namely root administrator account. The user name is **root** and password is **admin**. For more information on the account and password, please refer to **Section 3.2.1. Instruction to Web Management Interface**.

Network Utilities

The administrator can diagnose the network connectivity via this function.



- **Ping Host (Domain/ IP):** Enter the desired domain name or IP address of the target device for diagnosis purpose, i.e. `www.google.com`, and click ***Ping*** to proceed. The ping result will be shown in the **Result** field.



Configuration Save / Restore

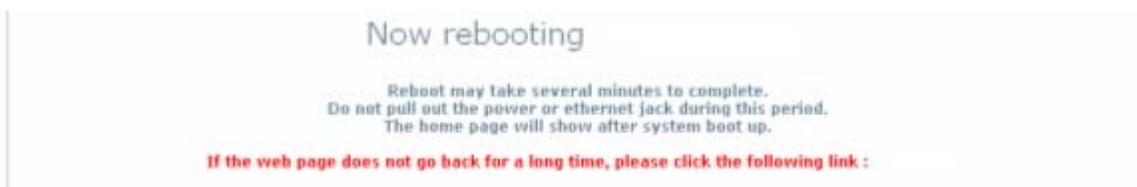
Current settings on the system can be backed up, or previous backed up settings can be restored as well as resetting the system back to factory default can be performed via this page.



- **Reset to Default:** Click **Reset** to load the factory default settings of NP726. A pop-up screen will appear to reconfirm the request to restart the system. Click **OK** to proceed, or click **Cancel** to cancel the restart request.



A warning message as displayed below appears during the rebooting period. If turning off the power is necessary, please allow the restart process to complete before turning off the system.



The **System Overview** page appears upon the completion of reboot.



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NP726 - 802 11g outdoor wireless access point Home Logout Help

System Wireless Utilities Status

System Overview Clients Repeater Event Log

Home > Status > System Overview

System Overview

System

System Name	NP726
Firmware Version	1.00.00
Build Number	1.2-1.1670
Location	Sydney, Australia
Site	EN-E
Device Time	2000/01/01 10:03:03
System Up Time	0 days, 0:03:03
Operating Mode	AP

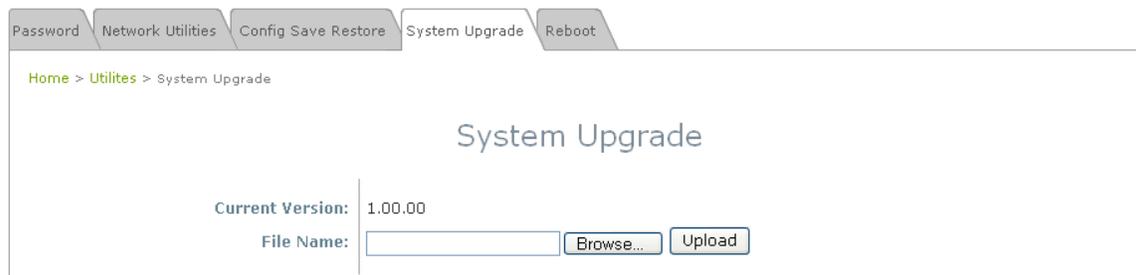
Radio Status

MAC Address	00:60:64:27:16:5B
Band	802.11b+g
Channel	1
TX Power	Highest

- **Backup Settings:** Click **Save** to save the current system settings to a local disk, i.e. the HDD of a local computer or Compact Disc.
- **Restore Settings:** Click **Browse** to search for a previously saved backup file, and then click **Upload** to restore the settings; the system will then be configured to the same settings as specified by the backup file.

System Upgrade

To upgrade the system firmware, click **Browse** to search for the new firmware file, and then click **Apply** to execute the upgrade process.



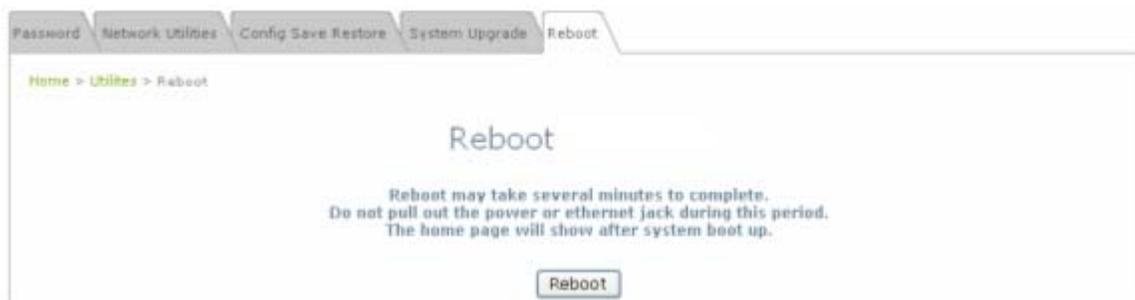
The screenshot shows a web interface for system upgrade. At the top, there are navigation tabs: Password, Network Utilities, Config Save Restore, System Upgrade (selected), and Reboot. Below the tabs, a breadcrumb trail reads "Home > Utilities > System Upgrade". The main heading is "System Upgrade". Below this, there is a section for "Current Version:" with the value "1.00.00". Underneath, there is a "File Name:" label followed by an empty text input field, a "Browse..." button, and an "Upload" button.

Note:

1. To prevent data loss during firmware upgrade, please back up the current settings before proceeding to firmware upgrade.
2. Please restart the system after the upgrade. Do not interrupt the system, i.e. power on/off, during the upgrading process or the restarting process as this may damage the system.

Reboot

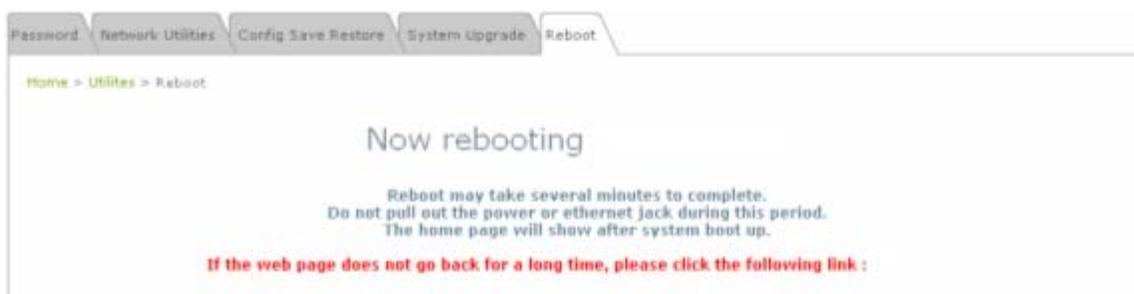
This function allows the administrator to safely restart the NP726. Click **Reboot** to restart the system immediately, and the whole process will take about three minutes to complete.



A pop-up screen appears to confirm the request to restart the system. Click **OK** to proceed, or click **Cancel** to cancel the restart request.



A warning message as displayed below appears during the rebooting period. If turning off the power is necessary, please allow the restart process to be completed before turning off the system.



The **System Overview** page appears upon the completion of reboot.

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NP726 - 802 11g outdoor wireless access point [Home](#) [Logout](#) [Help](#)

System **Wireless** **Utilities** **Status**

System Overview **Clients** Repeater Event Log

[Home](#) > [Status](#) > System Overview

System Overview

System

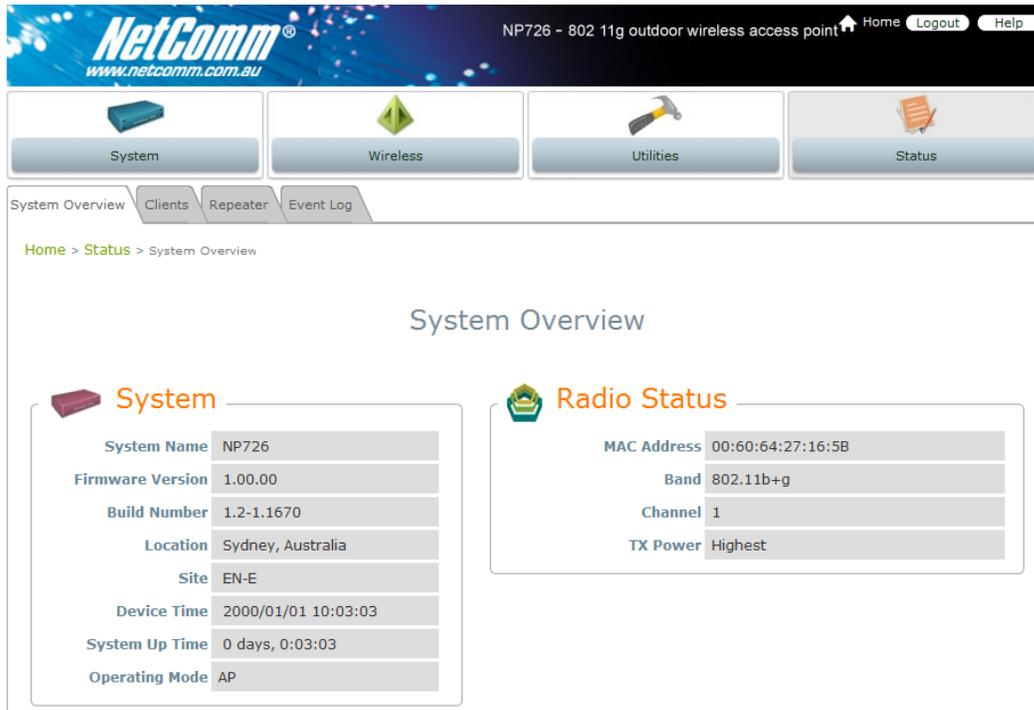
System Name	NP726
Firmware Version	1.00.00
Build Number	1.2-1.1670
Location	Sydney, Australia
Site	EN-E
Device Time	2000/01/01 10:03:03
System Up Time	0 days, 0:03:03
Operating Mode	AP

Radio Status

MAC Address	00:60:64:27:16:5B
Band	802.11b+g
Channel	1
TX Power	Highest

Status

Information of current system settings can be overviewed via this page; statuses of **System Overview**, **Clients**, **Repeater**, and **Event Log** are displayed in this interface.



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NP726 - 802 11g outdoor wireless access point Home Logout Help

System Wireless Utilities Status

System Overview Clients Repeater Event Log

Home > Status > System Overview

System Overview

System

System Name	NP726
Firmware Version	1.00.00
Build Number	1.2-1.1670
Location	Sydney, Australia
Site	EN-E
Device Time	2000/01/01 10:03:03
System Up Time	0 days, 0:03:03
Operating Mode	AP

Radio Status

MAC Address	00:60:64:27:16:5B
Band	802.11b+g
Channel	1
TX Power	Highest

System Overview

Detailed information on **System**, **Radio Status**, **LAN Interface**, and **AP Status** can be reviewed via this page.

System Overview

Home > Status > System Overview

System

System Name	NP726
Firmware Version	1.00.00
Build Number	1.2-1.1670
Location	Sydney, Australia
Site	EN-E
Device Time	2000/01/01 10:03:03
System Up Time	0 days, 0:03:03
Operating Mode	AP

Radio Status

MAC Address	00:60:64:27:16:5B
Band	802.11b+g
Channel	1
TX Power	Highest

LAN Interface

MAC Address	00:60:64:27:16:5A
IP Address	192.168.26.1
Subnet Mask	255.255.255.0
Gateway	192.168.26.254

AP Status

Profile Name	BSSID	ESSID	Security Type	Online Clients
VAP-1	00:60:64:27:16:5B	NetComm Wi...	None	0

- **System:** Display the information of the system.
 - **System Name:** The name of the system.
 - **Firmware Version:** The current firmware version installed.
 - **Build Number:** The build number of the firmware installed.
 - **Location:** The reminding note on the geographical location of the system. For more information, please refer to **Section 4.1.1. System Information**.
 - **Site:** Indicates the region of the system was built for, i.e. EN-A for the US, EN-E for Europe, and EN-J for Japan.
 - **Device Time:** The current time of the system.
 - **System Up Time:** The time period that the system has been in service since last boot-up.
 - **Operating Mode:** The mode currently in service.

- **Radio Status:** The RF interface status of the system.
 - **MAC Address:** The MAC address of the wireless interface.
 - **Band:** The band currently used by the system.
 - **Channel:** The channel currently used by the system.
 - **Tx Power:** The wireless transmitting power of the system.

- **LAN Interface:** Display the information of the LAN interface.
 - **MAC Address:** The MAC address of the LAN port.
 - **IP Address:** The IP address of the LAN port.
 - **Subnet Mask:** The Subnet Mask of the LAN port.
 - **Gateway:** The gateway IP address of the LAN port.

- **AP Status:** Display the AP configuration information of the system.
 - **BSSID:** Basic Service Set ID of the AP.
 - **ESSID:** Extended Service Set ID of the AP.
 - **Security Type:** Security type activated by the system.
 - **Online Client:** Number of clients currently associated to the AP.

Associated Client Status

The administrator can obtain detailed Information such as ESSID, MAC Address, SNR, and Idle Time of all associated clients via this page.



- **ESSID:** ESSID which the device is associated with.
- **MAC Address:** Indicate the associated client's MAC address.
- **SNR:** Indicate the SNR, Signal to Noise Ratio, of the respective client's association.
- **Idle Time:** Time period that the associated client is inactive (units in second).

Repeater Information

Detailed information on the repeater function can be reviewed in this page.

System Overview Clients Repeater Event Log

Home > Status > Repeater Information

Repeater Information

Repeater Status

Status	Enabled
Mode	Universal Repeater
Encryption	None

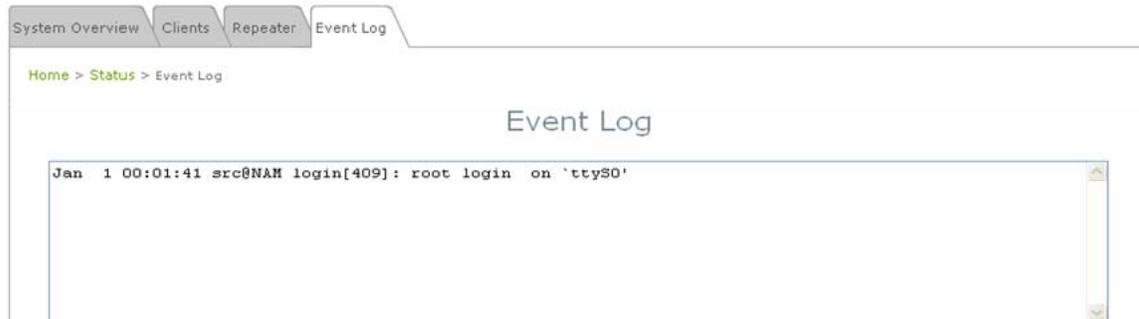
Universal Repeater

SSID	
TX Rate	0 Mbits
SNR	0
TX Count	0 Bytes
TX Error	0 Packets

- **Repeater Status:**
 - **Status:** The status of the repeater, either Enabled or Disabled.
 - **Mode:** The mode selected for the repeater function, either Universal Repeater or WDS.
 - **Encryption:** The encryption type used, none, WEP, or WPA-PSK.
- **Universal Repeater:** This table will appear when Universal Repeater is enabled; table for WDS Repeater will be displayed when WDS mode is used.
 - **SSID:** SSID of the upper-bound AP to be associated with.
 - **Tx Rate:** Indicate the transmitting rate of the Repeater.
 - **SNR:** The SNR, Signal to Noise Ratio, indicates the relative signal strength to upper-bound AP.
 - **Tx Count:** The accumulative number of transmission count.
 - **Tx Error:** The accumulative number of transmitting error occurred.

Event Log

The reported system events can be reviewed here.



Note: As the Event Log is stored in RAM, it will be refreshed after the system is restarted. The system also supports a Syslog function which can report the event to an external Syslog server.

- **Date/ Time:** The date and time when the event occurred.
- **Hostname:** The name of the host which records the event. It helps the administrator identify the source of the reported events.
- **Process name (with square brackets):** Indicate the process with which the specific event is associated.
- **Description:** Description of the event.

Appendix A. System Manager Authorities

There are two system management accounts for maintaining the system under CPE mode; namely, the root and admin accounts are with different levels of privileges. The root manager account is empowered with full privilege while the admin manager account is with partial.

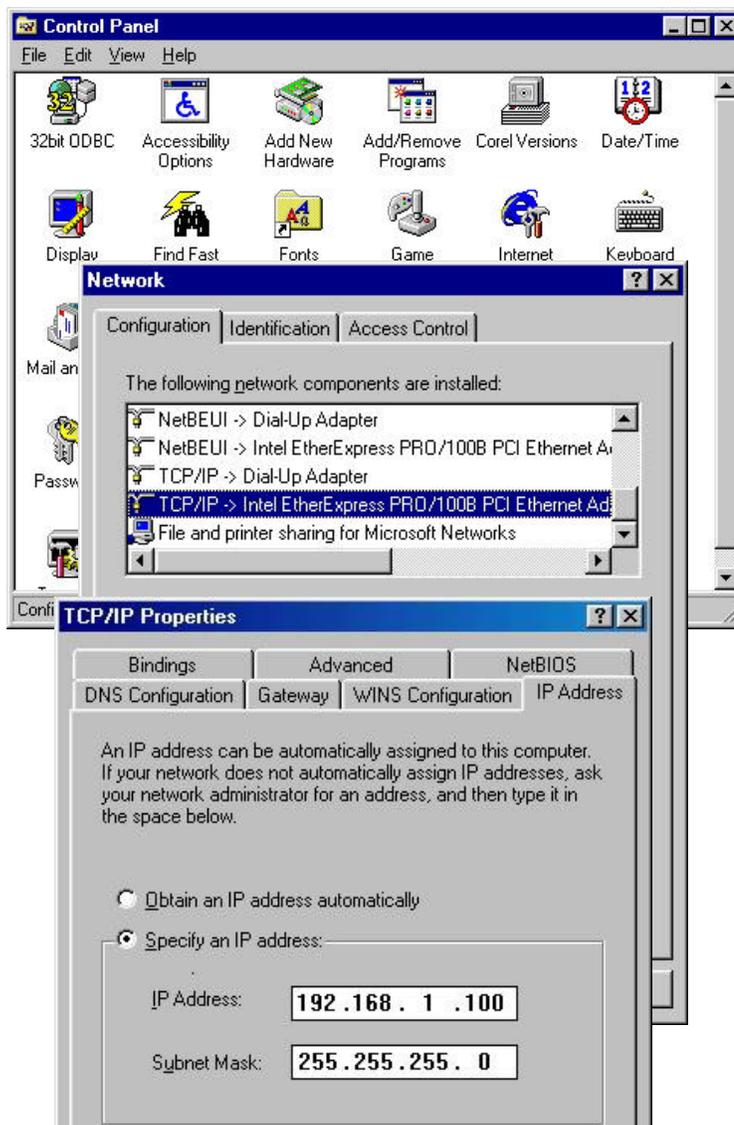
Please refer to the following table for the admin manager account's privileges.

Main Menu	Sub Menu	Group	Admin Privilege
System	System Information	System Information	Read
		Time	Read
	Operating Mode	Operating Mode	Read
	Network	WAN Configuration	Read
		Dynamic DNS	Read & Write
		LAN Configuration	Read & Write
	Management Services	SNMP Configuration	Read
		Syslog Configuration	Read
		UPnP Configuration	Read & Write
		Auto Reboot	Read
Wireless	General	General Settings	Read
	Advanced	Advanced Wireless Settings	Read
	Security	Security Settings	Read
	Site Survey		Read
Firewall	IP/Port Forwarding		Read & Write
	DMZ		Read & Write
Utilities	Password	Admin Password	Read & Write
	Network Utilities		Read & Write
	Config Save & Restore	Reset to Default	Read
		Backup Settings	Read & Write
		Restore Settings	Read
	System Upgrade		Read
Reboot		Read & Write	

Appendix B. Windows TCP/IP Settings

- Windows 9x / ME

1. From **Control Panel**, select **Network**.
2. In **Network Configuration** window, select **TCP/IP** and click on **Properties** button.
3. Select **Specify an IP address**, and type in:
IP Address: 192.168.1.100
Subnet Mask: 255.255.255.0



- **Windows 2000**

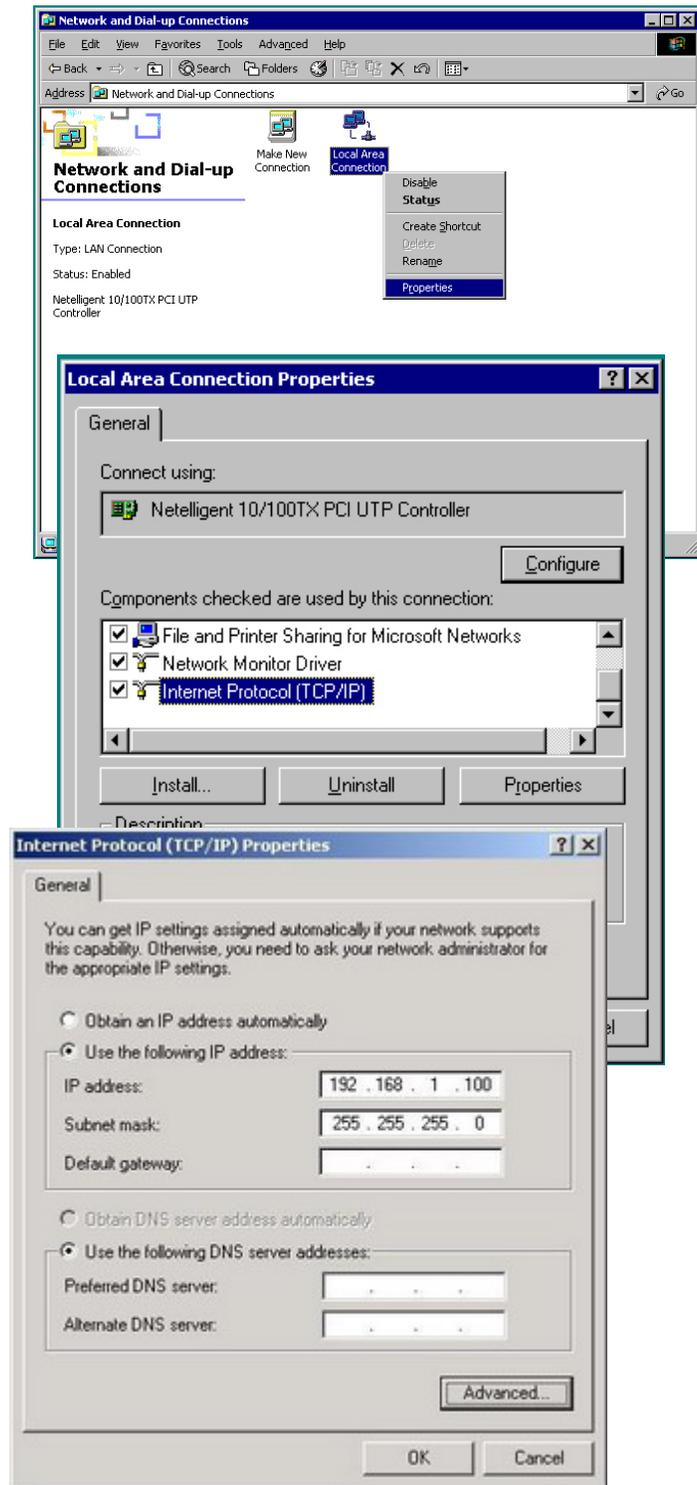
1. From **Control Panel**, select **Network and Dial-up Connections**.
2. Click right on **Local Area Connection** icon and select **Properties**.

3. In **Local Area Connection Properties** window, select **Internet Protocol (TCP/IP)** and click on **Properties** button.

4. Select **Use the following IP address**, and type in:

IP Address: 192.168.1.100

Subnet Mask: 255.255.255.0



• **Windows XP**

1. From **Control Panel**, select **Network and Internet Connections** and then click on **Network Connections**.

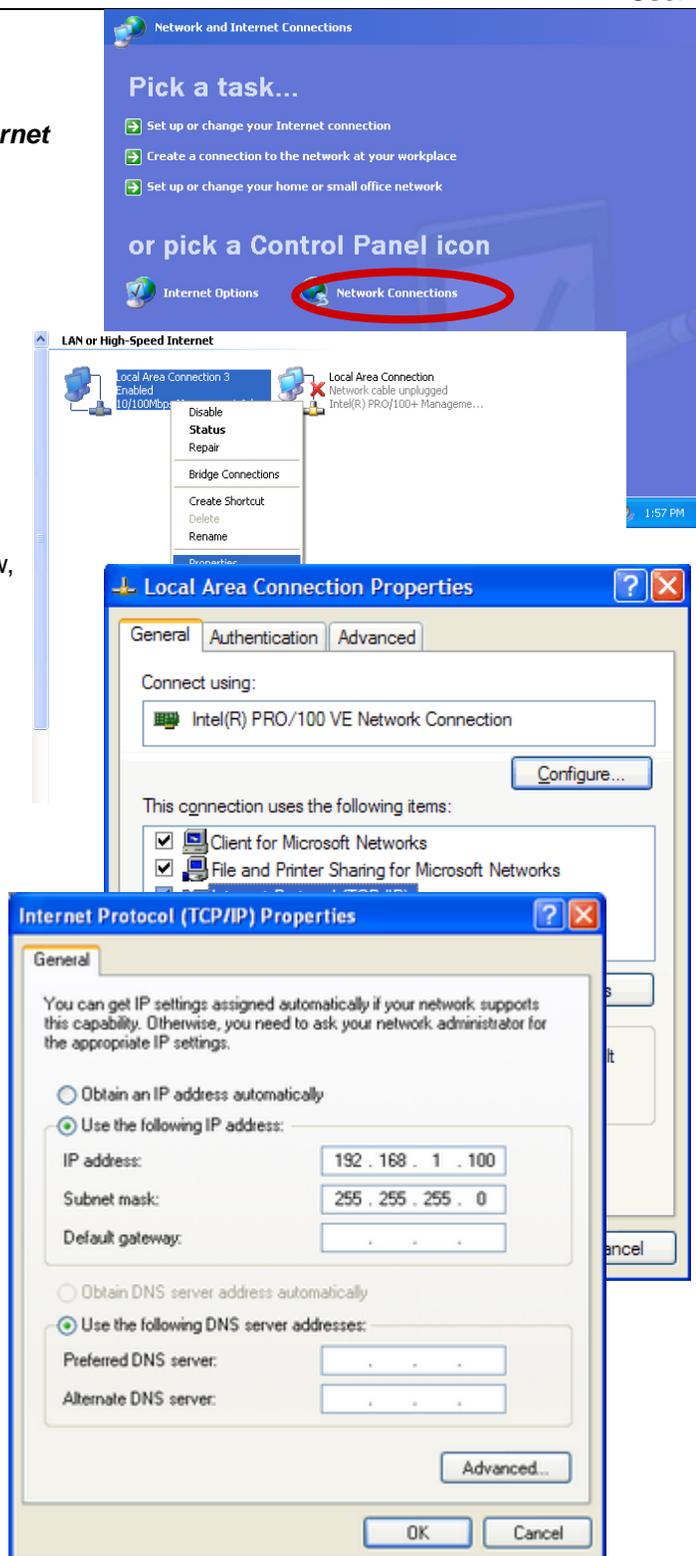
2. Click right on **Local Area Connection** icon and select **Properties**.

3. In **Local Area Connection Properties** window, select **Internet Protocol (TCP/IP)** and click on **Properties** button.

4. Select **Use the following IP address**, and type in:

IP Address: 192.168.1.100

Subnet Mask: 255.255.255.0



Appendix C: Legal & Regulatory Information

This manual is copyright. Apart from any fair dealing for the purposes of private study, research, criticism or review, as permitted under the Copyright Act, no part may be reproduced, stored in a retrieval system or transmitted in any form, by any means, be it electronic, mechanical, recording or otherwise, without the prior written permission of NetComm Limited. NetComm Limited accepts no liability or responsibility, for consequences arising from the use of this product.

NetComm Limited reserves the right to change the specifications and operating details of this product without notice.

NetComm is a registered trademark of NetComm Limited.

All other trademarks are acknowledged the property of their respective owners.

Customer Information

ACA (Australian Communications Authority) requires you to be aware of the following information and warnings:

- (1) This unit shall be connected to the Telecommunication Network through a line cord which meets the requirements of the ACA TS008 Standard.
- (2) This equipment has been tested and found to comply with the Standards for C-Tick and or A-Tick as set by the ACA . These standards are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio noise and, if not installed and used in accordance with the instructions detailed within this manual, may cause interference to radio communications. However, there is no guarantee that interference will not occur with the installation of this product in your home or office. If this equipment does cause some degree of interference to radio or television reception, which can be determined by turning the equipment off and on, we encourage the user to try to correct the interference by one or more of the following measures:
 - Change the direction or relocate the receiving antenna.
 - Increase the separation between this equipment and the receiver.
 - Connect the equipment to an alternate power outlet on a different power circuit from that to which the receiver/TV is connected.
 - Consult an experienced radio/TV technician for help.
- (3) The power supply that is provided with this unit is only intended for use with this product. Do not use this power supply with any other product or do not use any other power supply that is not approved for use with this product by NetComm. Failure to do so may cause damage to this product, fire or result in personal injury.

GNU General Public License

This product includes software code that is subject to the GNU General Public License ("GPL") or GNU Lesser General Public License ("LGPL"). This code is subject to the copyrights of one or more authors and is distributed without any warranty. A copy of this software can be obtained by contacting NetComm Limited on +61 2 9424 2059.

Product Warranty

The warranty is granted on the following conditions:

1. This warranty extends to the original purchaser (you) and is not transferable;
2. This warranty shall not apply to software programs, batteries, power supplies, cables or other accessories supplied in or with the product;
3. The customer complies with all of the terms of any relevant agreement with NetComm and any other reasonable requirements of NetComm including producing such evidence of purchase as NetComm may require;
4. The cost of transporting product to and from NetComm's nominated premises is your responsibility; and,
5. NetComm does not have any liability or responsibility under this warranty where any cost, loss, injury or damage of any kind, whether direct, indirect, consequential, incidental or otherwise arises out of events beyond NetComm's reasonable control. This includes but is not limited to: acts of God, war, riot, embargoes, acts of civil or military authorities, fire, floods, electricity outages, lightning, power surges, or shortages of materials or labour.
6. The customer is responsible for the security of their computer and network at all times. Security features may be disabled within the factory default settings. NetComm recommends that you enable these features to enhance your security.

The warranty is automatically voided if:

1. You, or someone else, use the product, or attempts to use it, other than as specified by NetComm;
2. The fault or defect in your product is the result of a voltage surge subjected to the product either by the way of power supply or communication line, whether caused by thunderstorm activity or any other cause(s);
3. The fault is the result of accidental damage or damage in transit, including but not limited to liquid spillage;

4. Your product has been used for any purposes other than that for which it is sold, or in any way other than in strict accordance with the user manual supplied;
5. Your product has been repaired or modified or attempted to be repaired or modified, other than by a qualified person at a service centre authorised by NetComm; and,
6. The serial number has been defaced or altered in any way or if the serial number plate has been removed.

Limitations of Warranty

The Trade Practices Act 1974 and corresponding State and Territory Fair Trading Acts or legalisation of another Government ("the relevant acts") in certain circumstances imply mandatory conditions and warranties which cannot be excluded. This warranty is in addition to and not in replacement for such conditions and warranties.

To the extent permitted by the Relevant Acts, in relation to your product and any other materials provided with the product ("the Goods") the liability of NetComm under the Relevant Acts is limited at the option of NetComm to:

- Replacement of the Goods; or
- Repair of the Goods; or
- Payment of the cost of replacing the Goods; or
- Payment of the cost of having the Goods repaired.

All NetComm ACN 002 490 486 products have a standard 12 months warranty from date of purchase. However some products have an extended warranty option (refer to packaging). To be eligible for the extended warranty you must supply the requested warranty information to NetComm within 30 days of the original purchase by registering on-line via the NetComm web site at

www.netcomm.com.au

Product Warranty

NetComm products have a standard 12 months warranty from date of purchase. However some products have an extended warranty option, via registering your product online at the NetComm website www.netcomm.com.au.

Technical Support

If you have any technical difficulties with your product, please refer to the support section of our website.

www.netcomm.com.au/support

Note: NetComm Technical Support for this product only covers the basic installation and features outlined in the Quick Start Guide. For further information regarding the advanced features of this product, please refer to the configuring sections in the User Guide or contact a Network Specialist.

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