NetSprite1023

USER GUIDE

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UTStarcom, Inc.

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About This Guide

Introduction

This user guide shows you how to connect the device and configure it through Web interface.

Conventions

This guide may contain notices, figures, screen captures, and certain text conventions.

Notice

The following table lists notices icons used in this guide.

Icon	Notice Type	Description
	Note	Information that contains important features or instructions but is not hazard-related.
	Caution	Information to alert of potential damage to a program, data, system, or device. If not avoided, may result in minor or moderate injury. It may also alert against unsafe practices and potential program, data, system, device damage.
	Warning	Information to alert of operations that may cause potential accident, casualty, personal injury, fatality or potential electrical hazard. If not avoided, could result in death or serious injury.

Icon	Notice Type	Description
	ESD	Information that indicates proper grounding precautions is required before handling a product.

Text

The following table lists text conventions in this guide.

Convention	Description
Text represented by `Courier New Font`	`This typeface` represents text that appears on a terminal screen, including, configuration file names (only for system output file names), and command names, for example `login.`
Text represented by **bold**	This typeface represents function names, window tabs, field names, for example, Set the **Time** field.
Text represented as **`user entry`**	**`This typeface`** represents commands entered by the user, for example, **`cd $HOME`**.
Text represented by “ ”	This typeface represents window and dialog box names, directory, file names, process name, and command in text, for example, open the “NE Inventory Management” window.
Text represented by [Menu] and [Menu/Sub-menu]	This typeface represents menus such as [File], and [File/New]
Text represented by <Button>	This typeface represents button on screen, function key on the keyboard and icon names for example, click <OK>.

Convention	Description
Text represented by *Document Name*	This typeface represents documents for reference, for example, *Netman 2020-based AN2000B-900 Installation Guide*
Text represented by `# File format:`	This typeface represents files in Unix/Linux system flies.

Figures and Screen Captures

This guide provides figures and screen captures as example. These examples contain sample data. This data may vary from the actual data on an installed system.

Related Documentation

The following document contains further information about installation of NetSprite1023:

- *NetSprite1023 Quick Start Guide*

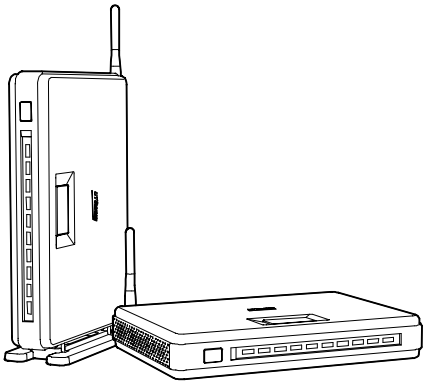
1 Overview

NetSprite1023 is a multifunctional network terminal of CPE (Customer Premises Equipment) family. The device provides integrated voice and data services over ADSL （Asymmetrical Digital Subscriber Loop） WAN (Wide Area Network) connection.

Device Introduction

Figure 1 pictures the NetSprite1023 device. The CPE can be easily placed indoors, lying, stand-up or hanging with the advantage of its small footprint.

Figure 1 Appearance



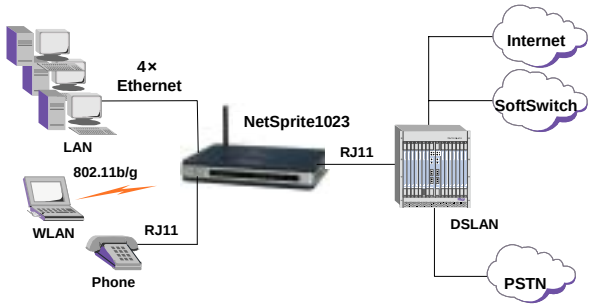
Feature List

- Provides ADSL uplink connecting to WAN
- Provides POTS（Plain Old Telephone Service）interface to implement plain telephone service or VoIP (Voice over Internet Protocol)
- Provides 4 Ethernet interfaces to implement high-speed data services
- Built-in AP, supports 802.11b/g for wireless LAN application
- DHCP (Dynamic Host Configuration Protocol) Server/Client
- Provides web-based management

Application

The application of NetSprite1023 is shown in Figure 2.

Figure 2 Application



The CPE provides an ADSL uplink port connecting to WAN. For data services, subscribers can access Internet via WLAN or Ethernet interface. For voice services, the device supports both VoIP and PSTN calls. These two services will finally go to softswitch network and Internet separately. VoIP is the preferred telephony service for users as it offers a lower call charge than PSTN. However, PSTN service is supported for complement of VoIP service when PSTN is the designated call path, VoIP service is not available, or during a power outage of the device.

2 Installation Planning

This chapter introduces the CPE interfaces and cable connections.

Packing List

Please check the package contents by comparing them with the following list:

- One NetSprite1023 device
- One AC/DC power converter with cable
- One RJ45 Ethernet straight cable (1.5m)
- One RJ11 phone cable (2m)
- One user guide (presswork or CD)
- Quality certificate
- Product warranty

Interfaces Introduction

The schematic diagram of NetSprite1023 faceplate is shown in Figure 3.

Figure 3 Faceplate

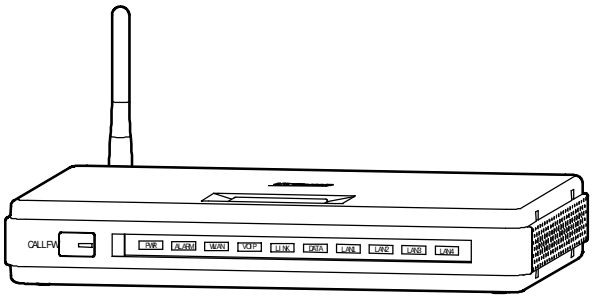


Table 1 describes LEDs and one button in the faceplate.

Table 1 Faceplate Definition

LED Name	Color	Definition
PWR (Power)	Green	This LED indicates power status: On: when power is applied to the device Off: when power is off
ALARM	Red	This LED indicates operational status: On: when the hardware/software malfunction is detected and not able to continue normal operation Off: when device operation is normal
WLAN	Green	This LED indicates WLAN status: Flash: when there're wireless stations accessed to the device Off: when there're no wireless stations accessed to the device

LED Name	Color	Definition
VOIP	Green	This LED indicates BB Phone VoIP status: On: when device successfully registered with call agent Off: when device failed to register with call agent Flash: when VoIP call is in progress or device is upgrading
LINK	Green	This LED indicates ADSL link status: On: when ADSL link is up Off: when ADSL link is down Flash: when ADSL link is training
DATA	Green	This LED indicates ADSL activity: Flash: when transmitting or receiving packets on ADSL port Off: When there is no ADSL connection, ADSL link is down, or ADSL link is in training state
LAN1-LAN4	Green	Each LED indicates one Ethernet LAN link status: On: when the Ethernet link is up and connected Off: when there is no connection, or the Ethernet link is down
CALLFW	Green	This LED indicates the status of call forwarding switch: On: when call forwarding is enabled Off: when Call forwarding is disabled
Local Call Forwarding Button		Push the button to enable/disable local call forwarding function

Figure 4 shows a schematic diagram of the backplane. Table 2 describes the interfaces and one button in the backplane.

Figure 4 Backplane

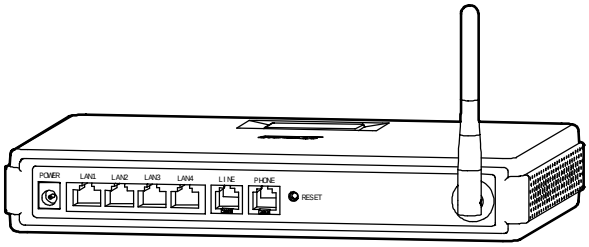


Table 2 Backplane Definition

Interfaces	Type	Description
POWER	Barrel	To connect to DC power
LAN1-LAN4	RJ45	To connect to PC
LINE	RJ11	To connect to ADSL line
PHONE	RJ11	To connect to phone
Reset Button	Recessed pinhole	Hold down for 5 seconds, the device will reboot and reset to factory defaults

Cable Connections

After verifying proper environmental conditions such as temperature, humidity and power supply, users may start the cable connections as following:

1 Connect the PSTN line to the port marked “LINE” using a RJ11 phone cable.

2 Connect a regular telephone instrument to the port marked “Phone” using a RJ11 phone cable.

3 Connect computers using RJ45 cables. Plug one end of the RJ45 cable to the Ethernet port of PC/Lap Top and the other end to any one of the CPE RJ45 ports marked from “LAN1” to “LAN4”.

4 If users have subscribed to VoIP service, the green VoIP Ready LED should light after power on. This indicates that VoIP service is available and ready for use. Users may have to wait for several minutes.

5 NetSprite1023 has a built-in WLAN card. Users may install a wireless card for each PC and set up wireless LAN (WLAN).

6 Power connection: Plug the AC/DC power converter to an AC wall socket and the other end of the cable to the device socket marked “POWER”.

3 Before Configuration

NetSprite1023 provides Web-based management of the device. To access the CPE, users can connect a PC to any one of the Ethernet ports. The Ethernet and WLAN interfaces use the same IP address (192.168.1.1/255.255.255.0) by default.

Login NetSprite1023

Users can access the CPE as following:

1 Set the IP address on the PC connecting to the CPE. The IP address must be in the same subnet as the LAN interface, for example, 192.168.1.10/255.255.255.0.

2 Open the Internet Explorer (IE) on the PC and enter: http://192.168.1.1.

3 The login window will appear as shown in Figure 5. Enter the user name and password. The default user name and password for administrator are both “Admin”. NetSprite1023 also provides username of “user” and password of “user123” for end-users.

Figure 5 Login

4 Click <Log in> to enter the NetSprite1023 home page as shown in Figure 6.

Figure 6 Home Page

Web Page Introduction

As shown from the menu bar in home page, NetSprite1023 provides some configuration and management options. The field below the menu bar is 5 links with detailed information.

Select “Setup” from the menu bar, for example, to display the window as shown in Figure 7. The left navigation tree lays out all the configurations of “setup” configuration. Click any one from the tree to enter the corresponding window.

Figure 7 Setup

Following introduces those options in the menu bar:

- Home: Provides links to “Quick Start”, “Setup”, “System”, “Status” and “Help”
- Quick Start: A guide for users to complete basic configurations step by step
- Setup: Provides WAN, LAN, VoIP, WLAN, security, Route and IP QoS configurations.
- System: Provides system commands including save, reboot and reset to defaults. It also provides user management and upgrading.
- Status: Indicates interfaces and connection status and statistics
- Help: Provides details of CPE functions
- Logout: To logout Web and return to the “Login” window

4 Quick Start

From the menu bar, select the “Quick Start” to display the window as shown in Figure 8. “Quick Start” provides WAN, VoIP and WLAN configurations. WAN configuration is needed only when WAN connection type is PPPoE or PPPoA.

Figure 8 Quick Start

Note: *For details of WAN connection, please refer to the section “Configure ADSL Connection” in chapter 5.*

- WAN configuration

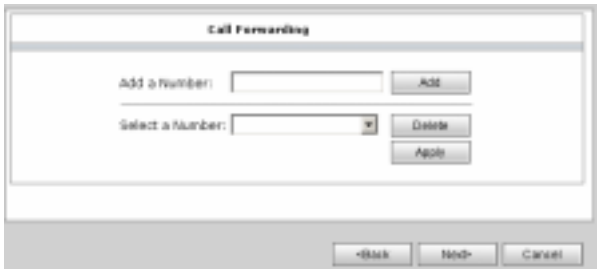
Users can modify the username and password of selected WAN connection. Click <Apply> to initiate the configuration.

Figure 9 WAN Configuration

- VoIP configuration

Click <next> to display the window as shown in Figure 10.

Figure 10 Call Forwarding



Users can add several telephone numbers in the “Add a Number” box and click <Add>, the numbers are listed in the “Select a Number” drop-down list box. Select one number from the list and click <Apply>, all the incoming calls are forwarded to the designated number. Click <Delete> to delete the selected number.

Note: *Please push the CALLFW button in the CPE faceplate to enable the function.*

- WLAN

Click <Next> to display the window as shown in Figure 11. Table 3 describes those wireless parameters.

Figure 11 WLAN

Table 3 WLAN Settings Description

Fields	Description	Default
Enable AP		Enabled
Channel	1-14	11
SSID	The SSID is for subscribers grouping. Only the wireless stations that have the same SSID as the CPE can access the device.	utstar
Domain	Possible values: FCC, IC, ETSI, SPAIN, FRANCE, MKK, MKK1, US, WORLD	FCC
Power Level	The transmitting power level of the CPE wireless interface, i.e. the percentage of maximum transmitting power. Possible values: Full，50 %，25 %，12 %，6 %	Full
802.11 Mode	CPE wireless work mode. Possible values: Mixed, 11b only, 11g only	Mixed

Fields	Description	Default
Hidden SSID	Enable “Hidden SSID” and the CPE SSID is invisible when indicating the available network in the user’s wireless network card.	Disabled
User Isolation	Enable “User Isolation” and wireless stations will separate from each other.	Disabled

Click <Apply> to initiate the configuration. It will take effect after rebooting the AP.

5 Setup Configuration

The “Setup” includes WAN, WLAN, VoIP, LAN, Security, Route, IP QoS and other configurations.

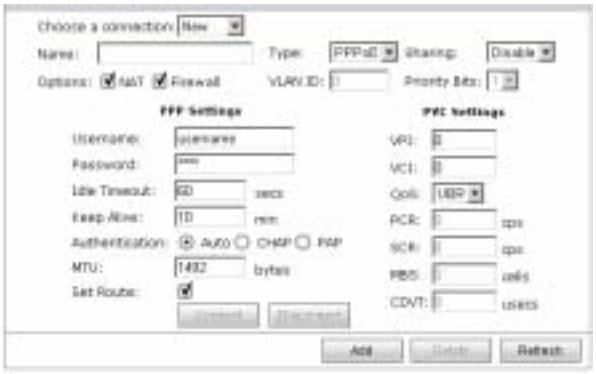
Configure WAN

WAN configuration includes “ADSL Connection” and “ADSL Line Setup” configuration.

Configure ADSL Connection

From the navigation tree, click “ADSL Connection” to display the window as shown in Figure 12. The window is of PPPoE type by default.

Figure 12 ADSL Connection



- PPPoE

Table 4 PPPoE Description

Fields	Description	Default
Choose a connection	Select “New” to set up a new connection. All the connections are listed in the box.	
Type	Possible values: PPPoE, PPPoA, Static, DHCP, Bridge, CLIP	
Sharing	Possible values: Disable, Enable, LAN. **Disable**: Each PVC of the connection should be different. **Enable**: Multiple connections share the same PVC. **VLAN**: VLAN tag is attached to the connection.	Disable
QoS	Possible values: **UBR**: Unspecified Bit Rate **CBR**: Constant Bit Rate **VBR**: Variable Bit Rate	UBR
Priority Bits	Possible values: 1-7	1
Username/ Password	The service provider offers them for PPPoE connection.	
Keep Alive	The maximum period that the CPE initiates connection request	10 min
Set Route	Enable “Set Route” and the gateway IP address the CPE obtained is taken as the CPE default gateway.	
VPI/VCI	VPI/VCI is needed for each connection. The value is compliance with the setting of DSLAM	

Fields	Description	Default
PCR, SCR, MBS, VDVT	PCR and CDVT can be changed in CBR type; all the parameters can be changed in VBR type	

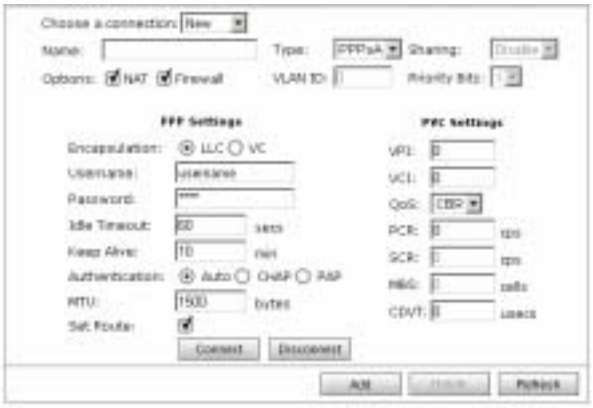
Note: *Users can set different QoS to mark different traffic when multiple connections share the same PVC.*

Click <Add> to add the connection. The CPE will connect automatically after powered on. The <Connect> button is used for manually initiate a connection and <Disconnect> to manually disconnect current connection

- PPPoA

Select “PPPoA” from the “Type” box to display the window as shown in Figure 13. Please refer to Table 4 for details.

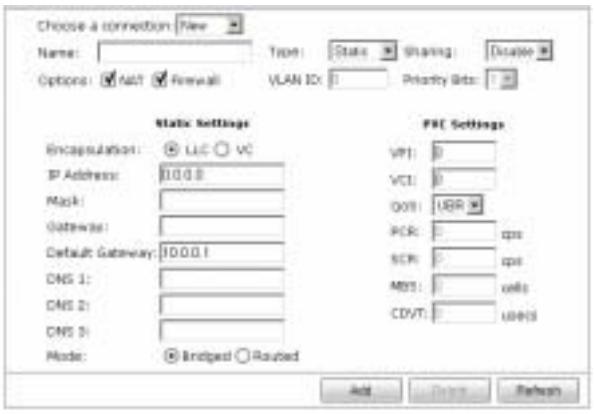
Figure 13 PPPoA



- Static

Select “Static” from the “Type” box to display the window as shown in Figure 14.

Figure 14 Static



Note: *When two connections are used for voice and data, enter the voice network gateway IP address in the “Gateway” text box and the data network gateway IP address in the “Default Gateway” box.*

When voice and date services share the same connection, enter the gateway IP address in the “Default Gateway” box only.

- DHCP

Click “DHCP” in the “Type” box to display the window as shown in Figure 15. The CPE obtains WAN interface IP address from the WAN side DHCP server.

- Default Gateway: Select the box and the CPE will take the gateway obtained as the CPE default gateway

Figure 15 DHCP

Click <renew> to get WAN IP address again and <Release> to release obtained IP address.

- Bridge

Select “Bridge” from the “Type” box to display the window as shown in Figure 16.

Figure 16 Bridge

- CLIP (Classical IP over ATM)

Click “CLIP” from the “Type” box to display the window as shown in Figure 17.

Figure 17 CLIP

Configure ADSL Line Setup

From the navigation tree, click “ADSL Line Setup” to display the window as shown in Figure 18. the default modulation type is “MMODE”(multi-mode).

Figure 18 ADSL line setup

Configure WLAN

WLAN configuration includes “Basic Setup”, “Security” and “management” configuration.

Configure Basic Setup

From the navigation tree, click “Basic Setup” to display the window as shown in Figure 19.

Table 5 describes the parameters in the window. Please refer to “WLAN Settings” in chapter 4 for more information of WLAN configuration.

Figure 19 Basic Setup

Table 5 Basic Setup Description

Fields	Description	Default
Beacon Period	Interval between Beacon packets, the Beacon frame contains network card information, period of broadcast to the wireless network.	200(ms)
DTIM Period	Interval between Delivery Traffic Indication Messages.	2, the exact value is 2 times of beacon period
RTS Threshold	WLAN is using the mechanism of Request To Send/Clear To Send. RTS/CTS threshold can be set, RTS/CTS is used when the data packet size exceeds the threshold. Choose a setting within a range of 0 – 2347.	2347

Fields	Description	Default
Frag Threshold	Fragment threshold is used to improve the efficiency in a high volume wireless network. Any packet greater than this value will be fragmented. Choose a setting within a range of 256 – 2346 bytes.	2346

Configure WLAN Security

From the navigation tree, click “Security” to display the window as shown in Figure 20.

Figure 20 WLAN Security

- None: No security settings
- WEP

Select the “WEP” to display the window as shown in Figure 21. WEP encryption uses a static secret key. Each wireless station uses the same key to access the wireless network. NetSprite1023 supports 64-bit or 128-bit static WEP encryption to prevent illegal access.

Figure 21 WEP

Authentication Type:

- Open: To encrypt data frames
- Shared: To encrypt authentication frames during 802.11-authentication process and data frames
- Both: To negotiate “Open” or “Shared” automatically

Encryption Key:

- The password for 64-bit WEP is 10 hexadecimal digits (0-9, A-F). For example: 11AA22BB33.
- The password for 128-bit WEP is 26 hexadecimal digits (0-9, A-F).

  For example: 00112233445566778899AABBCC.

Note: *When WEP encryption is enabled, users can select one of the keys as the encryption key and set the same in wireless network card.*

- 802.1x

Select “802.1x” to display the window as shown in Figure 22. The CPE can implement 802.1x authentication. Users need 802.1x authentication supplicants to initiate 802.1x authentication request.

Figure 22 802.1x

- WPA

Select “WPA” to display the window as shown in Figure 23.

- Group Key Interval: The interval after which the Radius server will re-negotiate broadcast and multicast encryption key
- 802.1x: To enter server IP address, Port and Secret. Data traffic will be encrypted between Radius server and wireless station.
- PSK String: When PSK string is enabled, users set the same in wireless cards. Data traffic will be encrypted between CPE and wireless stations.

Figure 23 WPA

Note: *The security settings will take effect after rebooting the WLAN module.*

Configure Management

From the navigation tree, click “Management” to display the window as shown in Figure 24. The default web page is of “Access List”.

Figure 24 WLAN Management

- Access List
  - Select “Allow” and enter MAC address in the “Mac Address” box, thus only the wireless station of the MAC address can access the CPE.
  - Select “BAN” and enter MAC address in the “Mac Address” box, thus the wireless station of the MAC address can’t access the CPE.
  - MAC Address: Enter a MAC address in the box and click <Add>, the MAC address will list below. Click <Delete> to cancel the access list settings.

Click <Apply> to initiate the configuration and it will take effect after rebooting.

- Associated Stations

Click “Associated Stations” to display the window as shown in Figure 25. All the wireless stations connected to the CPE are listed on the window.

Note: *Please enable access list first before setting associated stations.*

Figure 25 Associated Stations

Click the <Delete> button under “Ban Station”, and the MAC address will display in the “Access List” window.

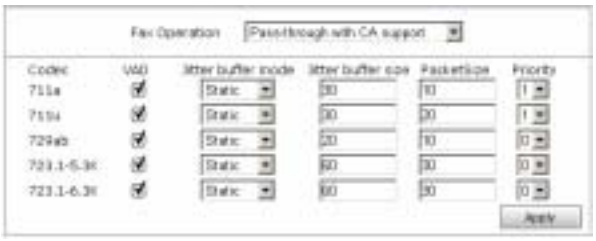
Configure VoIP

VoIP configuration includes Codec, SIP, Digital Map, Call Forwarding and Voice connection configuration.

Configure Codec

From the navigation tree, click “Codec” to display the window as show in Figure 26.

Figure 26 Codec



Configure SIP

From the navigation tree, click “SIP” to display the window as shown in Figure 27.

Figure 27 SIP Configuration

Configure Digital Map

From the navigation tree, click “Digital Map” to display the window as shown in Figure 28.

Figure 28 Digital Map

Users can set digital rules by the parameters described in Table 6 .

Table 6 Digital Map Rule Description

Fields	Description
DefaultPstn Prefix	Dial the prefix first and the phone call will be sent to PSTN. The default value is 0000. Users can modify it of up to 5 digits.
Source Interface	FXS
Rule	**. +T**: To represent any number and be sent after interdigit length. **. +#**: To represent any number and add # before sending the number Users can also set some certain numbers, e.g. （0571） [0-9]{8}: **( )**: To enter prefix; **[ ]**: To enter number range; **{ }**: To enter number digits
Destination Interface	Possible values: PSTN: To send the call to PSTN VoIP: To send the call to VoIP
Prefix Forwarding	Choose “Yes” to send the call number with the prefix. Choose “No” to send the number without the prefix.

Configure Call Forwarding

From the navigation tree, click “Call Forwarding” to display the window as shown in Figure 29

Figure 29 Call Forwarding

- Add a Number: To enter a number in the box and click <Add>, the number displays in the “Select a Number” list.
- Select a Number: Select a number from the box and click <Apply>; all the incoming call will be forwarded to the selected number. Click <Delete> to delete the selected phone call.

Configure Voice Connection

From the navigation tree, click “Voice Connection” to display the window as shown in Figure 30. Select the WAN connection for VoIP service.

Figure 30 Voice

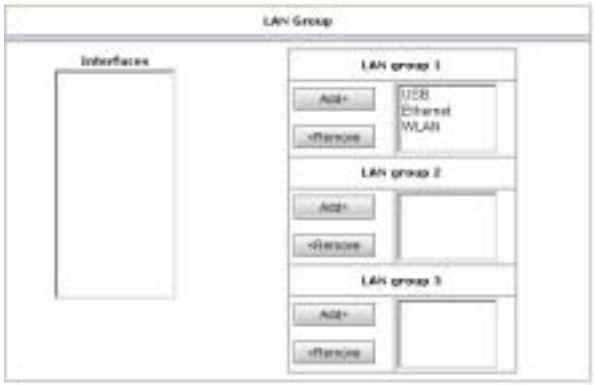
Configure LAN

LAN configuration includes LAN Group, DHCP, IP, Client and Isolation configuration.

Configure LAN Group

From the navigation tree, click “LAN Group” to display the window as shown in Figure 31.

Figure 31 LAN Group



NetSprite1023 provides LAN groups. Users can set different IP addresses to each group. The Ethernet and WLAN interfaces are of the same IP address by default (192.168.1.1) in LAN group 1. USB is unavailable.

Select one interface and click <Remove>, it will be removed to the “Interface” box. The <Add> button is to remove the interface from the “Interface” box to the designated LAN group.

Note: *The Ethernet can't be moved from LAN Group 1.*

Configure DHCP

From the navigation tree, click "DHCP" to display the window as shown in Figure 32.

Figure 32 DHCP

Configure IP

From the navigation tree, click "IP" to display the window as shown in Figure 33. Users can set IP address for selected LAN group.

Figure 33 IP

- Obtain an IP address automatically: To obtain WAN interface IP address from DHCP server of LAN side
- Use the following static address: To manually set WAN interface IP address

Configure LAN Clients

From the navigation tree, click “Clients” to display the window as shown in Figure 34. Users can set IP address to the designated MAC address. The IP address is in the selected LAN group subnet.

Figure 34 LAN Clients

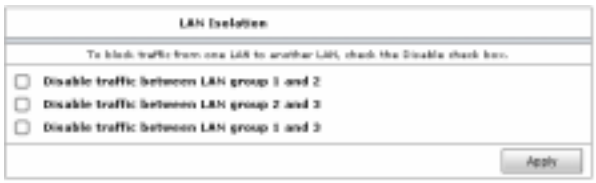
The “Static Address” area displays all the LAN clients set by the “LAN Clients” configuration and the “Dynamic Address” area displays all the clients set by DHCP.

Configure Isolation

From the navigation tree, click “Isolation” to display the window as shown in Figure 35.

Select one option and the LAN users of one LAN group can't access the others.

Figure 35 LAN Isolation



Configure Security

The security configuration includes DMZ, IP Filters, Access Control, UpnP and Port Mapping configuration.

Configure DMZ

From the navigation tree, click "DMZ" to display the window as shown in Figure 36.

Figure 36 DMZ

Enable DMZ and all the service will be forwarded from the selected WAN interface to the LAN client. Click <New IP> to configure LAN clients.

Configure IP Filters

From the navigation tree, click “IP Filters” to display the window as shown in Figure 37. It provides to block user’s LAN PC from accessing some Internet services.

Figure 37 IP Filters

Table 7 IP Filters Description

Fields	Description
Select LAN Group	To select the LAN group from the list
LAN IP	To select one LAN IP. The list box displays all the LAN IP set by “LAN Clients”.
New IP	To add a new LAN IP. Click “New IP” to display the window of “LAN Clients”.
Block Outgoing Ping	To forbid the ping test to WAN side

Fields	Description
Block All Traffic	To block all the LAN IP to access WAN

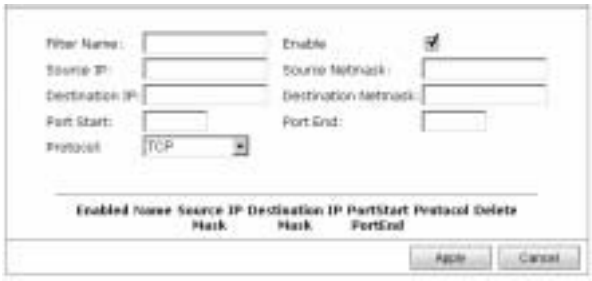
From the window, users can select certain service to apply IP filter. Select category in the “Category” area and select one rule in the “Available Rules” area. Click the <Add> button and the selected service is moved to “Applied Rules”. Users can query the protocol and port number of the selected service by clicking the <View> button.

Figure 38 View

- Custom: Users can custom IP filter rules by this link.

Click “Custom” to display the window as shown in Figure 39.

Figure 39 Custom IP Filters



Configure Access Control

From the navigation tree, click “Access Control” to display the window as shown in Figure 40. Users can select service names under the “WAN” and “LAN” to implement access control from WAN or LAN interface.

Figure 40 Access Control

Users can set IP addresses that only these IP addresses can access the CPE. Enter an IP address in the “New IP” box and Click <Add>. The IP will appear in the “IP Access List” box.

Configure UpnP

From the navigation tree, click “UpnP” to display the window as shown in Figure 41. Users should enable the function when the applications need UPnP support such as MSN.

Figure 41 UPnP

Configure Port Mapping

From the navigation tree, click “Port Mapping” to display the window as shown in Figure 42.

Figure 42 Port Mapping

Users can set port forwarding rules in the window or custom rules by “custom” as shown in Figure 43.

Figure 43 Custom Port Mapping

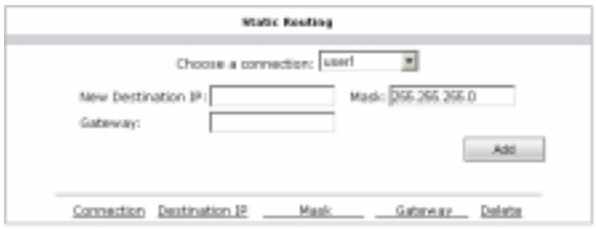
Configure Routing

Route configuration includes Static and Dynamic Routing configuration.

Configure Static Routing

From the navigation tree, click “Static” to display the window as shown in Figure 44.

Figure 44 Static Routing



Configure Dynamic Routing

From the navigation tree, click “Dynamic” to display the window as shown in Figure 45.

Figure 45 Dynamic Routing

Others

NetSprite1023 also provides SNTP and Multicast configuration.

Configure SNTP

From the navigation tree, click “SNTP” to display the window as shown in Figure 46.

Figure 46 SNTP

Configure Multicast

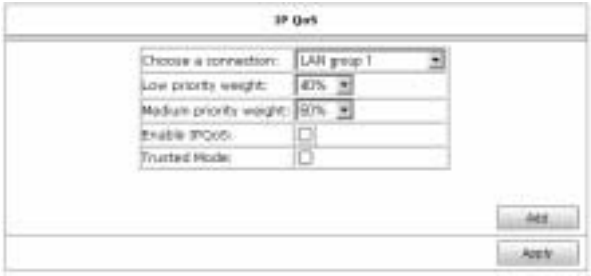
From the navigation tree, click “Multicast: to display the window as shown in Figure 47.

Figure 47 Multicast

IP QoS

From the navigation tree, click “IP QoS” to display the window as shown in Figure 48.

Figure 48 IP QoS



Select the value in “Low priority weight” and “Medium priority weight” list. Ensure the sum of these two values is equal to 100%. Select the “Enable IPQoS” box to enable the function.

Click <Add> to display the window as show in Figure 49. Users can set IP QoS rules.

Figure 49 IP QoS Traffic Rule

6 System Management

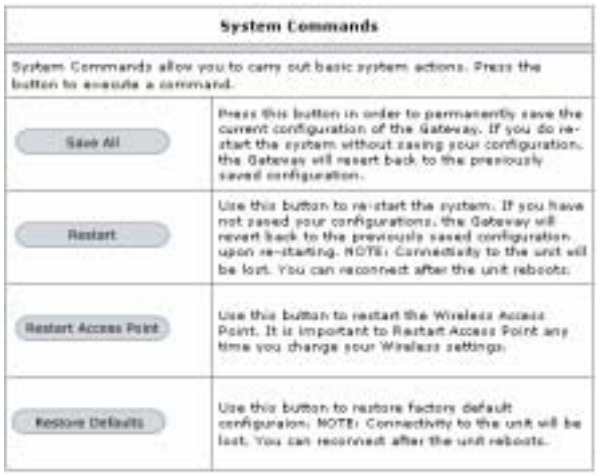
System

The “System” includes Commands, User, and Upgrade.

System Commands

From the navigation tree, click “Command” to display the window as shown in Figure 50.

Figure 50 System Commands



- **Save all:** Clicks “Save All” and all the configurations will be saved

- **Restart:** Clicks “Restart” and the CPE will reboot
- **Restart Access Point:** To restart the WLAN module. It’s required in wireless configurations.
- **Restore Defaults:** Clicks “Restore Defaults” and the CPE will reboot restoring to factory defaults.

User Management

From the navigation tree, click “User” to display the window as shown in Figure 51.

Figure 51 User Management

Users can modify password and idle timeout of “Admin” or “User”.

Upgrade

From the navigation tree, click “Upgrade” to display the window as shown in Figure 52.

Enter the IP address of the FTP server, updating file type and the file name; users can update the CPE via FTP.

Figure 52 Updating System Online (FTP)

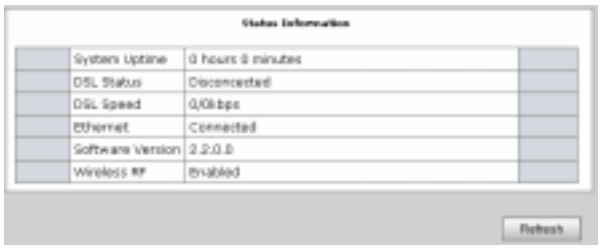
Status

The “Status” includes Basic Status, Connection, DHCP Clients, Modem, Network Statistics and Production Information.

Basic Status

From the navigation tree, click “Basic Status” to display the window as show in Figure 53.

Figure 53 Status Information



Connection

From the navigation tree, click “Connection” to display the window as shown in Figure 54. It indicates information of WAN connections.

Figure 54 Connection Status

DHCP Clients

From the navigation tree, click “DHCP Clients” to display the window as shown in Figure 55. It indicates all the DHCP clients connected to the CPE.

Figure 55 DHCP Clients

Modem

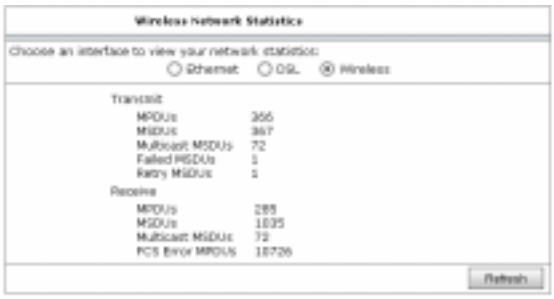
From the navigation tree, click “Modem” to display the window as show in Figure 56. It indicates ADSL line information.

Figure 56 Modem Status

Network Statistics

From the navigation tree, click “Network Statistics” to display the window as shown in Figure 57. Users can select “Ethernet”, “DSL” or “Wireless” to indicate corresponding network statistics.

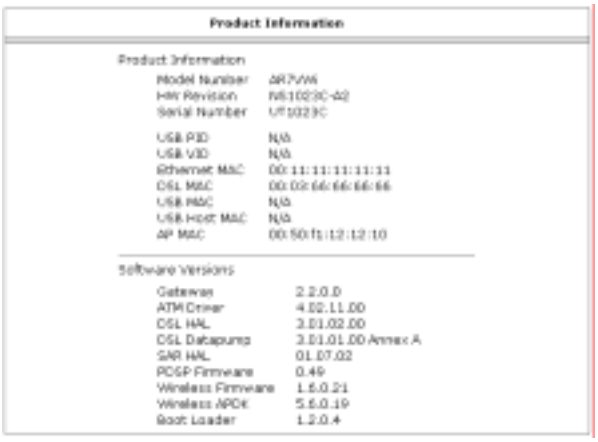
Figure 57 Network Statistics-Wireless



Product Information

From the navigation tree, click “Product Information” to display the window as shown in Figure 58.

Figure 58 Product Information



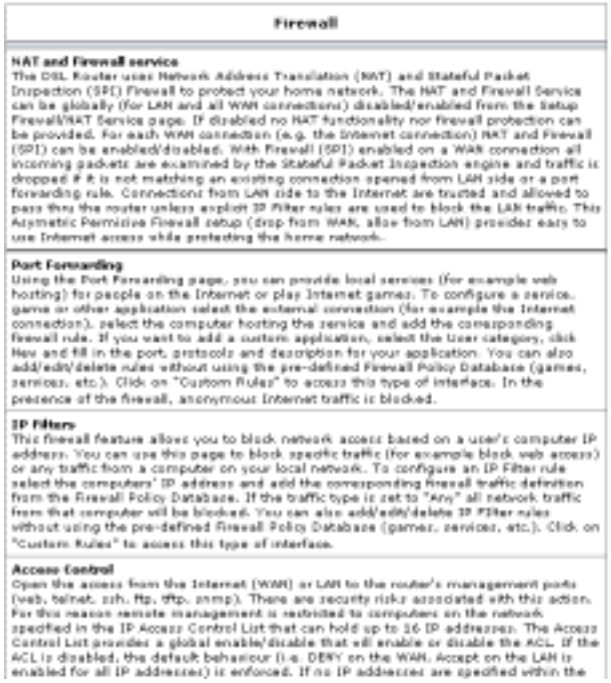
Help

From the menu bar, click “Help” to display the window as shown in Figure 59. the “Help” gives detailed description involving Firewall, IP QoS, LAN Clients, PPP and UpnP function.

Figure 59 Help

For example, click “Firewall” from the left tree to display the window as shown in Figure 60. It includes NAT and Firewall, Port Forwarding, IP Filters, Access Control and so on.

Figure 60 Firewall



Firewall

NAT and Firewall service
The DSL Router uses Network Address Translation (NAT) and Stateful Packet Inspection (SPI) Firewall to protect your home network. The NAT and Firewall Service can be globally (for LAN and all WAN connections) disabled/enabled from the Setup Firewall/NAT Service page. If disabled no NAT functionality nor firewall protection can be provided. For each WAN connection (e.g. the Internet connection) NAT and Firewall (SPI) can be enabled/disabled. With Firewall (SPI) enabled on a WAN connection all incoming packets are examined by the Stateful Packet Inspection engine and traffic is dropped if it is not matching an existing connection opened from LAN side or a port forwarding rule. Connections from LAN side to the Internet are trusted and allowed to pass thru the router unless explicit IP Filter rules are used to block the LAN traffic. This Asymetric Permissive Firewall setup (drop from WAN, allow from LAN) provides easy to use Internet access while protecting the home network.

Port Forwarding
Using the Port Forwarding page, you can provide local services (for example web hosting) for people on the Internet or play Internet games. To configure a service, game or other application select the external connection (for example the Internet connection), select the computer hosting the service and add the corresponding firewall rule. If you want to add a custom application, select the User category, click New and fill in the port, protocols and description for your application. You can also add/edit/delete rules without using the pre-defined Firewall Policy Database (games, services, etc.). Click on "Custom Rules" to access this type of interface. In the presence of the firewall, anonymous Internet traffic is blocked.

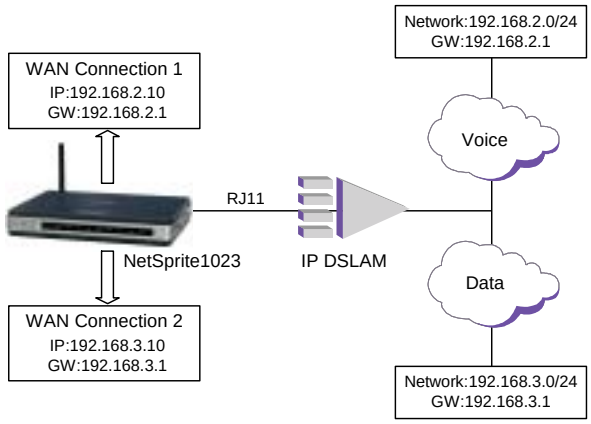
IP Filters
This firewall feature allows you to block network access based on a user's computer IP address. You can use this page to block specific traffic (for example block web access) or any traffic from a computer on your local network. To configure an IP Filter rule select the computers' IP address and add the corresponding firewall traffic definition from the Firewall Policy Database. If the traffic type is set to "Any" all network traffic from that computer will be blocked. You can also add/edit/delete IP Filter rules without using the pre-defined Firewall Policy Database (games, services, etc.). Click on "Custom Rules" to access this type of interface.

Access Control
Open the access from the Internet (WAN) or LAN to the router's management ports (web, telnet, ssh, ftp, sftp, snmp). There are security risks associated with this action. For this reason remote management is restricted to computers on the network specified in the IP Access Control List that can hold up to 16 IP addresses. The Access Control List provides a global enable/disable that will enable or disable the ACL. If the ACL is disabled, the default behaviour (i.e. DENY on the WAN, Accept on the LAN is enabled for all IP addresses) is enforced. If no IP addresses are specified within the

7 Example

This chapter introduces one example and the schematic diagram is shown in Figure 61.

Figure 61 Example



The CPE basic configuration includes ADSL, LAN, VoIP and wireless configuration.

- ADSL:

Two WAN connections are used for voice and data services separately.

- connection1: Used for voice service; type: Static; VPI/VCI: 0/35

- connection2: Used for data service; type: Static; VPI/VCI: 8/35. DNS: 192.168.9.21, 192.168.9.23

- LAN
  - LAN Group1 IP address: 172.18.37.1/255.255.255.0
  - Enable DHCP Server
- VoIP
  - Configure SIP
  - Enable the WAN connection for voice
- WLAN
  - Set the CPE SSID: userabc
  - Set SSID of user's wireless network card: userabc

Step1: Configure WAN connection of "connectio1".

Click "Setup/WAN/ADSL Connection" to display the window as shown in Figure 62.

Figure 62 Connction1

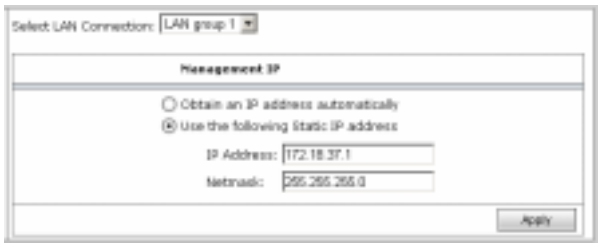
Step2: Configure WAN connection of “connection2” for data service.

Figure 63 Connection2

Step3: Configure LAN group1 IP address.

Click “Setup/LAN/LAN Group” to display the window as shown in Figure 64. The Ethernet and WLAN interfaces are in group1 by default.

Figure 64 LAN Configuration

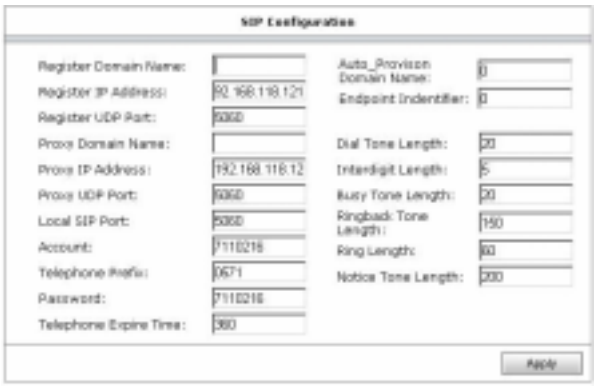


Step4: Enable DHCP Server and configure the DHCP pool. Click “Setup/LAN/DHCP” to display the window as shown in Figure 65.

Figure 65 DHCP Configuration

Step5: Configure SIP. Click “Setup/VoIP/SIP” to display the window as shown in Figure 66.

Figure 66 SIP



Step6: Enable the WAN connection for data service. Click "Setup/VoIP/Voice Connection" to display the window as shown in Figure 67.

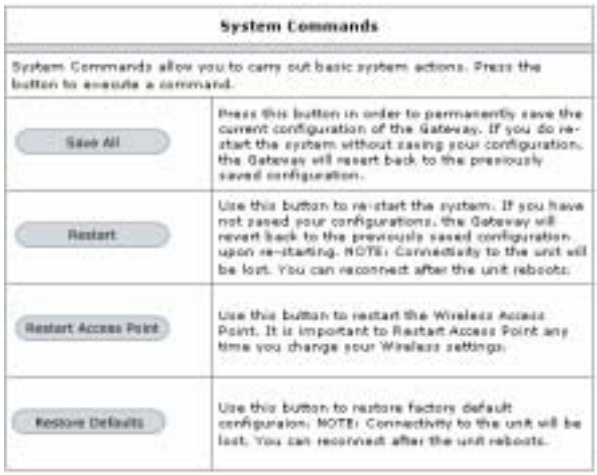
Figure 67 Voice

Setp7: Set SSID for the CPE. Click "Setup/WLAN/Basic Setup" to display the window as shown in Figure 68.

Figure 68 SSID

Step8: Save all the configurations and reboot the WLAN module. Click “System/Command” to display the window as shown in Figure 69.

Figure 69 Save and Restart AP



Step9: Set SSID for user's wireless network card.

8 Technical Specification

Physical Interface	
ADSL Port (FXO)	RJ11
Telephone Port (FXS)	RJ11
Ethernet Interface	RJ45
Wireless Characteristic	
Interface	Compliant with IEEE 802.11b/g standard
Operating Frequency	2400 - 2483.5MHz ISM band
Operating Channel	Channel 1 - 11 for US band for 11b mode Channel 1 - 11 for US band for 11g mode
Data Rate	802.11b: 11Mbps with fall back rates of 5.5, 2 and 1 Mbps 802.11g: 54Mbps with fall back rates of 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2 and 1Mbps
Modulation Schemes	802.11b: CCK 802.11g: OFDM
Transmitter Power	OFDM：25mw； CCK：50mw
Receiver Sensitivity	-71dBm for 54Mbps -88dBm for 11Mbps PER<8%
Antenna	Indoor omni-directional antenna for 2.40dBi

ADSL Characteristic	
ADSL Compliance	compatible with ANSI T1.413 Issue 2, ITU-T G.992.1 (G.dmt) Annex A/B, G.992.2 (G.lite) Annex A/B
ADSL Mode Capability	Downstream/upstream: 8M/800kbps
AAL and ATM	Integrated ATM AAL5 support
Voice Characteristic	
Capacity	One port
Codec	G.711, G.729a
Splitter	Build-in splitter for PSTN telephone service
Environmental	
Operating Temperature	0°C - 50° C
Storage Temperature	-20°C - 70°C
Relative Humidity	10% - 85%, none condensing
Electronic	
Power	12V/1.25A
Dimension	
224mm×156mm×36mm (L×W×H)	
Weight	
920g	

9 Term and Acronym List

ADSL	Asymmetric Digital Subscriber Line
AP	Access Point
ATM	Asynchronous Transfer Mode
CBR	Constant Bit Rate
CPE	Customer Premises Equipment
DHCP	Dynamic Host Configuration Protocol
DSLAM	Digital Subscriber Line Access Multiplexer
IEEE	Institute of Electrical and Electronics Engineering
LAN	Local Area Network
MAC	Media Access Control
OAM	Operation, Administration, and maintenance
POTS	Plain Old Telephone Service
PPPoE	PPP over Ethernet
PSTN	Public Switched Telephone Network

PVC	Permanent Virtual Connection
QoS	Quality of Service
SIP	Session Initiation Protocol
SSID	Service Set Identifier
UBR	Unspecified Bit Rate
VBR	Variable Bit Rate
VoIP	Voice over Internet Protocol
WAN	Wide Area Network
WEP	Wired Equivalent Privacy
WLAN	Wireless Local Area Network

Regulatory statement (FCC)

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

IMPORTANT NOTE (CO-LOCATION)

FCC RF Radiation Exposure Statement: This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

MPE Statement (Safety Information)

Your device contains a low power transmitter. When device is transmitted it sends out RadioFrequency (RF) signal.

Safety Information

In order to maintain compliance with the FCC RF exposure guidelines, this equipment shouldbe installed and operated with minimum distance 20cm between the radiator and your body.Use only with supplied antenna. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.

The identification of the product:
Product Name: NetSprite
Model: NS1023

Technical Support:	Technical Support in the US:
UTStarcom Telecom Co., Ltd. Address: NO.88 Wenhua Road, Hangzhou PRC 310012 Telephone : 0571-88862342-3524 Email: cbshi@utstar.com	UTStarcom, Inc. Address: 1275 Harbor Bay Parkway Alameda, CA 94502 USA Telephone: 1 (866) 663-3266 Email: ips@utstar.com

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

Regulatory statement (CE R&TTE)

European standards dictate maximum radiated transmit power of 100mW EIRP and frequency range 2.400-2.4835GHz; In France, the equipment must be restricted to the 2.4465-2.4835GHz frequency range and must be restricted to indoor use.

Declaration of Conformity

For the following equipment: NetSprite NS1023 with WLAN module

CE 0984 !

Is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility (89/336/EEC), Low-voltage Directive (73/23/EEC) and the Amendment Directive (93/68/EEC), the procedures given in European Council Directive 99/5/EC and 89/3360EEC.

The equipment was passed. The test was performed according to the following European standards:

- EN 300 328 V.1.4.1 (2003-04)
- EN 301 489-1 V.1.3.1 (2001-09) / EN 301 489-17 V.1.1.1 (2000-09)
- EN 50371: 2002
- EN 60950: 2000

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