



TECHNICAL SUPPORT NOTE

Configuring Ethernet Broadband Internet Access in AOS Integrated Switch/Router Products

Featuring ADTRAN OS and the Web GUI

Introduction

This Technical Support Note shows how to configure an AOS integrated switch product for an Internet connection using an ethernet port. In this scenario, you will usually have a separate cable or DSL modem that will handle the WAN protocol and then provide ethernet to a port on the AOS device.

Overview

Configuring an AOS integrated switch product requires an understanding of the VLAN interface model. VLAN interfaces are used to create directly connected networks on the unit. Ports can then be defined as members of those VLANs. We will utilize VLAN interfaces to create a WAN and LAN segment for the unit. Next, we will add a default route and use the Firewall Wizard to setup basic Internet connection sharing (NAPT).

Step 1 – Logging into the unit.

The unit will come from the factory with an IP address of 10.10.10.1 on the default VLAN 1 interface. Set the IP address on your workstation to 10.10.10.2 with a subnet mask of 255.255.255.0 and a default gateway of 10.10.10.1. In this example, we will use the first port as our Internet access port. Make sure you have an ethernet cable attached from your workstation to any other free port on the unit. Open a web browser such as Microsoft Internet Explorer and type in 10.10.10.1 for the URL. You will be prompted for a username and password for which you should enter “admin” and “password” respectively since this is the factory default. After successfully entering the username and password, the main GUI page will be displayed.

The screenshot displays the ADTRAN NetVanta 1224STR web GUI. The left sidebar contains a navigation menu with categories like System, Physical Interfaces, Passwords, IP Services, DHCP Server, Hostname / DNS, LLDP, Switches, Ports, Port Security, Storm Control, Link Aggregation, VLANs, Spanning Tree, MAC Forwarding, Class of Service, Stacking, and Router / Bridge. The main content area is divided into two sections: 'General System Information' and 'Port Summary'.

General System Information:

Firmware Version	08.02.00.0
Part Number	120052011
Serial Number	18A07M0413AA287
System Uptime	0 days, 0 hours, 0 minutes, 24 seconds
System Time	19:44:52 UTC
System Date	03/16/2005
NTP Time Server	(Not Configured)

Port Summary:

Name	Description	Link	Status	Membership
eth 0/1	---	DOWN	Disable	Default
eth 0/2	---	DOWN	Disable	Default
eth 0/3	---	DOWN	Disable	Default

Step 2 – Setting up the Private VLAN Interface

Click the “VLANs” link to setup the IP addresses for the unit. In the following diagrams, we will change the default IP address to 192.168.1.254. Note: When you submit the default IP

address change, you will need to change your workstation IP address to match up with the new subnet and reconnect to the NetVanta using the new IP address. For example, after making the IP address change, set your workstation IP address to 192.168.1.1.



You will see the default VLAN listed with the 10.10.10.1 IP address. You can click this VLAN and change the private IP address to the private IP address you have chosen.

The image shows the NetVanta 1224STR configuration page for VLANs. The page title is 'NetVanta 1224STR' with 'Save' and 'Logout' buttons. The left sidebar shows the 'Switch' section selected. The main content area is titled 'VLAN Configuration' and contains instructions, an 'Add New VLAN' button, and a table for existing VLANs.

ID	Name	VLAN Type	IP Address	Mask
1	Default	Static	10.10.10.1	255.255.255.0

Change the IP address to 192.168.1.254. After changing the default VLAN interface IP address, be sure to change your workstation IP address to match this network. For example, you could use 192.168.1.1 as your workstation IP address with a default gateway of 192.168.1.254.

ADTRAN NetVanta 1224STR Save Logout

VLANs > "Default"

VLAN Configuration for "Default"

Use this dialog to modify the VLAN configuration. If a VLAN name is not entered, one will be generated.

Enabled: <input checked="" type="checkbox"/>	Enable or disable this VLAN
VLAN Name: <input type="text" value="Default"/>	Up to 32 alphanumeric characters.
VLAN ID: <input type="text" value="1"/>	Not modifiable after the VLAN is created.
VLAN Type: Static	This VLAN can be manually configured.
VLAN Interface: <input checked="" type="checkbox"/>	Select this to configure this VLAN as an IP interface

VLAN Interface Configuration

Description:

Enabled:

MAC Address: : : : : :

Interface Mode:

IP Settings

Address Type:

IP Address: . . . ←

Subnet Mask: . . .

Dynamic DNS:

Secondary IP Settings

IP Address	Mask
<input type="text" value="Add a new Secondary IP Address"/>	

←

Step 3 – Add a New VLAN for the Public Subnet (Port)

The public VLAN will be configured in one of three different modes, (A) IP Routing with a Static IP, (B) IP Routing using DHCP, or (C) PPPoE. DHCP is normally used when connected to a cable modem and PPPoE is often used when connected to a DSL modem set in pass-through or bridge mode. The following pages will show an example of each different scenario. We will use VLAN 100 for the public VLAN and 100.100.100.2/30 as the public IP address when a static IP address is used. When a static IP address is used, we need to make sure that a static default route is entered on the "Route Table" page. Add a new VLAN by clicking the "VLAN" link and then clicking the "Add a New VLAN" button.

ADTRAN **NetVanta 1224STR** [Save](#) [Logout](#)

System

- Getting Started
- System Summary
- Physical Interfaces
- Passwords
- IP Services
- DHCP Server
- Hostname / DNS
- LLDP

Switch

- Ports
- Port Security
- Storm Control
- Link Aggregation
- VLANs**
- Spanning Tree
- MAC Forwarding
- Class of Service
- Stacking

Router / Bridge

- Default Gateway

VLAN Configuration

Use this dialog to create a new VLAN or edit an existing one. To edit an existing VLAN, click on the item in the list below this dialog. Use the [Default Gateway](#) to specify a default gateway if IP routing is not enabled on the unit. Use the [Route Table](#) to add a default route when using IP routing functionality.

Add New VLAN

←

Modify/Delete a VLAN

ID	Name	VLAN Type	IP Address	Mask
1	Default	Static	10.10.10.1	255.255.255.0

(Option A) – IP Routing with a Static IP Configuration. The IP address 100.100.100.2 is used as an example. The IP address information should have been provided to you by your Internet Service Provider (ISP).

ADTRAN **NetVanta 1224STR** Save Logout

VLANs > New VLAN

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Firewall
 Firewall Wizard
 General Firewall
 Security Zones

VPN
 VPN Wizard
 VPN Peers
 Certificates

Utilities
 Port Mirroring
 Configuration
 Firmware
 Reboot Unit
 Telnet To Unit

VLAN Configuration for "VLAN100"

Use this dialog to modify the VLAN configuration. If a VLAN name is not entered, one will be generated.

Enabled: *Enable or disable this VLAN*

VLAN Name: *Up to 32 alphanumeric characters.*

VLAN ID: *VLAN ID is any number in the range 1-4094.*

VLAN Interface: *Select this to configure this VLAN as an IP interface*

VLAN Interface Configuration

Description: *Optional descriptive label for this port. Up to 80 alphanumeric characters.*

Enabled: *Enable or disable this VLAN interface*

MAC Address: ; ; ; ; ; *Media Access Control address for this interface*

Interface Mode: *Select an interface mode*

IP Settings

Address Type: *Static*

IP Address: . . . *Enter the IP address for this numbered interface*

Subnet Mask: . . . *Enter the Subnet Mask for this numbered interface*

Dynamic DNS: *Dynamic DNS is used to register this interface's IP address with a DNS Name.*

Secondary IP Settings

IP Address	Mask
Add a new Secondary IP Address	

Reset Apply

(Option B) – IP Routing Using DHCP. This is a typical cable modem setup.

The screenshot displays the NetVanta 1224STR web interface. The left sidebar contains a navigation menu with categories: System, Switch, VLANs, Router / Bridge, Firewall, and VPN. The main content area is titled 'VLAN Configuration for "VLAN100"' and includes the following sections:

- Enabled:** *Enable or disable this VLAN*
- VLAN Name:** *Up to 32 alphanumeric characters.*
- VLAN ID:** *VLAN ID is any number in the range 1-4094.*
- VLAN Interface:** *Select this to configure this VLAN as an IP interface*
- VLAN Interface Configuration**
 - Description:** *Optional descriptive label for this port. Up to 80 alphanumeric characters.*
 - Enabled:** *Enable or disable this VLAN interface*
 - MAC Address:** : : : : : *Media Access Control address for this interface*
 - Interface Mode:** *Select an interface mode*
- IP Settings**
 - Address Type:**
 - Dynamic DNS:** *Dynamic DNS is used to register this interface's IP address with a DNS Name.*
- Secondary IP Settings**
 - IP Address:**
 - Mask:**
 - Add a new Secondary IP Address**

At the bottom of the configuration area are **Reset** and **Apply** buttons.

(Option C) – PPPoE (ADSL modem set to pass-through mode)

Set the Interface Mode to PPPoE and click “Apply”. Clicking “Apply” will open a new page to set PPPoE specific settings.

The screenshot displays the NetVanta 1224STR web interface. The top navigation bar includes the ADTRAN logo, the device name 'NetVanta 1224STR', and 'Save' and 'Logout' buttons. A left-hand menu lists various configuration categories: System, Switch, VLANs, Router / Bridge, Firewall, and Utilities. The main content area is titled 'VLAN Configuration for "VLAN100"' and contains the following settings:

- Enabled:** *Enable or disable this VLAN*
- VLAN Name:** *Up to 32 alphanumeric characters.*
- VLAN ID:** *VLAN ID is any number in the range 1-4094.*
- VLAN Interface:** *Select this to configure this VLAN as an IP interface*

VLAN Interface Configuration

- Description:** *Optional descriptive label for this port. Up to 30 alphanumeric characters.*
- Enabled:** *Enable or disable this VLAN interface*
- MAC Address:** : : : : : *Media Access Control address for this interface*
- Interface Mode:** *Select an interface mode*

IP Settings

- Address Type:** *Dynamic DNS is used to register this interface's IP address with a DNS Name.*
- Dynamic DNS:**

Secondary IP Settings

IP Address	Mask
Add a new Secondary IP Address	

Buttons for 'Reset' and 'Apply' are located at the bottom of the configuration window.

(Option C) – PPPoE specific settings

A username and password are required for PPPoE. Service Name and AC Name are rarely used but should be entered if provided by the ISP. Peer Authentication type should almost always be set to "None". Also, PPPoE should be set for "Negotiated" IP address unless the ISP has specified a static IP address. Whenever a static IP address is used, you will need to complete the optional step 4, which shows how to configure a static default route.

The screenshot shows the NetVanta 1224STR web interface. The left sidebar contains a navigation menu with categories: System, Switch, Router / Bridge, Firewall, VPN, and Utilities. The main content area is titled "PPPoE Configuration for 'ppp 2'" and is divided into several sections:

- Basic configuration for the PPP interface:**
 - Description: (Description label (optional))
 - Enabled: (Disabling this port causes data flow to stop for this interface only)
 - MTU: (Maximum Transmit Unit (Range 64-1520 bytes))
- Authentication Settings:**
 - Sent Username: (Enter the Username to send to the remote peer. (Required))
 - Sent Password: (Enter the Password to send to the remote peer. (Required))
 - Service Name: (If your provider does not require a Service Name, leave it blank.)
 - AC Name: (If your providers does not require an AC Name, leave it blank.)
 - Peer Authentication Type: (Authentication type used when authenticating remote peers)
 - Peer Username: (Peer Username is required when the remote peer must authenticate to this unit.)
 - Peer Password: (Password received from the remote peer.)
- IP Settings:**
 - Address Type: (dropdown)
 - Default Route: (Add a default route to the route table.)
 - Dynamic DNS: (dropdown) (Dynamic DNS is used to register this interface's IP address with a DNS Name.)
- Secondary IP Settings:**
 - IP Address: Mask:
 - [Add a new Secondary IP Address](#)

At the bottom of the configuration area are "Reset" and "Apply" buttons.

Step 4 – Adding a Default Route when using a Static IP Address

This step is not required when learning a default route dynamically as in step 3 (option B) when we used DHCP. You need to add a static default route when using IP Routing with a static IP address or PPPoE with a static IP address. Click the "Route Table" link and then add a static default route by specifying the destination network and subnet mask as 0.0.0.0. In our example, the static IP address assigned to us by our ISP is 100.100.100.2 and the default route gateway IP address set below is 100.100.100.1.

ADTRAN **NetVanta 1224STR** [Save](#) [Logout](#)

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 Class of Service
 Stacking

Router / Bridge
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 Routing
 Routes Table
 IP Interfaces
 QoS Maps
 Bridging

Firewall

Add a Static Route to the Route Table

Static Routes are often required to reach networks that are not learned via a dynamic routing protocol. Enter the appropriate information below to add a static route or click on a route below to use it as a template for a new route.

Destination Address: . . . *Enter the network to add to the route table.*

Destination Mask: . . . *Enter the appropriate mask for this network.*

Gateway:

Address: . . . *Enter the gateway address to reach this network.*
 - OR -
 Interface: *Select the interface to be used as the gateway.*

Administrative Distance (optional): *The Distance metric for this network. (Optional parameter)*

View/Delete Static Route
 Click on the name of a route to use it as a template for a new route.

Destination	Mask	Next Hop	Dist	Type
There are no entries in the route table.				

Step 5 – Assign an Ethernet Port to be a member of the Public VLAN

In the example below, we are setting the first Ethernet port as a member of VLAN 100 and setting it to “edgeport” mode to allow this port to come up immediately. This port should be plugged into your Internet connection. Make sure your workstation is not plugged into this port and remember to click the “Apply” button. Also, it is probably a good idea after making this change to click the “Save” button to save the configuration in nonvolatile memory.

NetVanta 1224STR Save Logout

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Router / Bridge
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 QoS Maps
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Firewall
 Firewall Wizard
 General Firewall

Switch Ports Configuration
 Make changes to one or more port's settings and click Apply. Click on the name of the port to configure additional port settings and view port statistics.

Select All Deselect All Reset Apply

Port	Edge Port Mode	Membership	Speed/Duplex	Status	STP
Template Line	<Select>	<Select>	<Select>		
eth 0/1	Enabled	Vlan 100(VLAN100)	Auto	100/Full	Forwarding
eth 0/2	Disabled	Vlan 1(Default)	Auto	100/Full	Forwarding
eth 0/3	Disabled	Vlan 1(Default)	Auto	Down	---
eth 0/4	Disabled	Vlan 1(Default)	Auto	Down	---
eth 0/5	Disabled	Vlan 1(Default)	Auto	Down	---
eth 0/6	Disabled	Vlan 1(Default)	Auto	Down	---
eth 0/7	Disabled	Vlan 1(Default)	Auto	Down	---
eth 0/8	Disabled	Vlan 1(Default)	Auto	Down	---
eth 0/9	Disabled	Vlan 1(Default)	Auto	Down	---
eth 0/10	Disabled	Vlan 1(Default)	Auto	Down	---

Step 6 – Using the Firewall Wizard to Setup Internet Connection Sharing (NAPT)

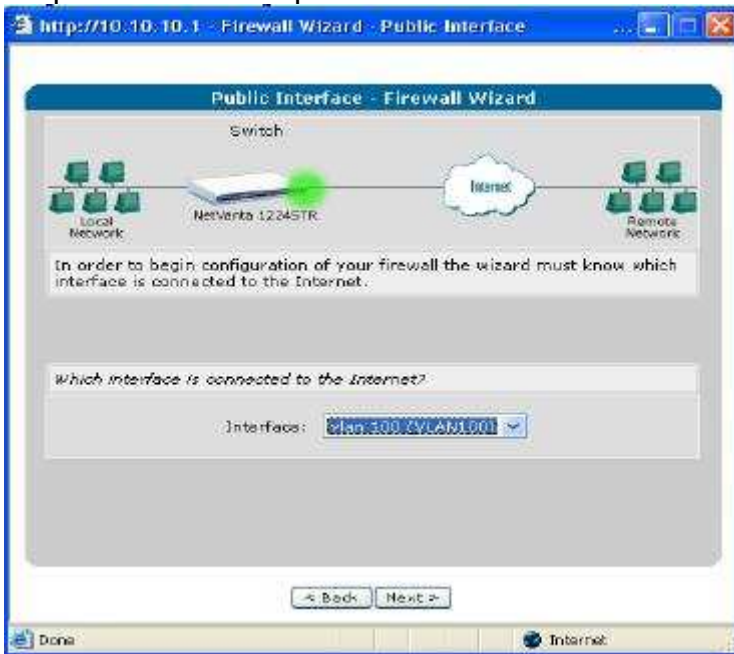
We will use the Firewall Wizard to setup the “Security Zones” on the router. You can also setup some basic port forwarding using this wizard. Note: You only want to use this wizard for the initial configuration. All future firewall settings should be added using the “Security Zones”

Firewall
 Firewall Wizard
 General Firewall
 Security Zones

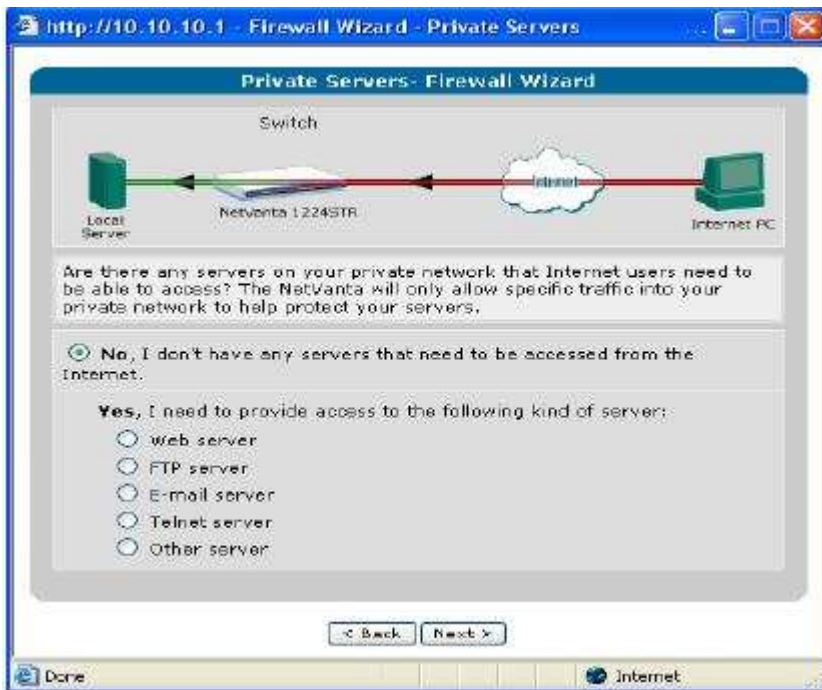
Step 6-1. The first wizard page is just a warning that this will overwrite any previous firewall settings.



Step 6-2. Select the public VLAN interface. In our example, this is VLAN 100.



Step 6-3. This step will allow you to setup some basic port forwarding. Port forwarding can be done at a later date by adding policies to the "Public" Security Zone.



Step 6-4. The final step is to confirm that the default VLAN 1 will share the IP address applied to the public VLAN 100.



Step 7 – Save Your Changes

The basic configuration should be complete after using the Firewall Wizard. Be sure to click "Save" after you make any configuration changes. This will ensure that the configuration will be maintained in the unit by storing it in the NVRAM.

The screenshot shows the ADTRAN NetVanta 1224STR web interface. The top navigation bar includes the ADTRAN logo, the device name 'NetVanta 1224STR', and 'Save' and 'Logout' buttons. A left-hand menu lists various configuration categories: System, Switch, Router / Bridge, and Firewall. The main content area is divided into two sections: 'General System Information' and 'Port Summary'.

General System Information

Firmware Version	08.02.00.E
Part Number	1200520LL
Serial Number	LBADTR0413AA2B7
System Uptime	0 days, 6 hours, 44 minutes, 57 seconds
System Time	15:40:10 UTC
System Date	03/17/2005
NTP Time Server	(Not Configured)

Port Summary

Status for the NetVanta's interfaces.

Name	Description	Link	State	Membership
eth 0/1	---	UP	Forward	VLAN100
eth 0/2	---	UP	Forward	Default
eth 0/3	---	DOWN	Disable	Default
eth 0/4	---	DOWN	Disable	Default
eth 0/5	---	DOWN	Disable	Default
eth 0/6	---	DOWN	Disable	Default
eth 0/7	---	DOWN	Disable	Default

Step 8 – Consult Additional Documentation

Additional Documentation is available at www.adtran.com using the “Service/Support” link or doing a search for “ADTRAN OS Web GUI”. There you can find an introduction document for each menu

If you experience any problems using your ADTRAN product, please contact [ADTRAN Technical Support](#).

DISCLAIMER

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