



Configuring VLANS

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Overview

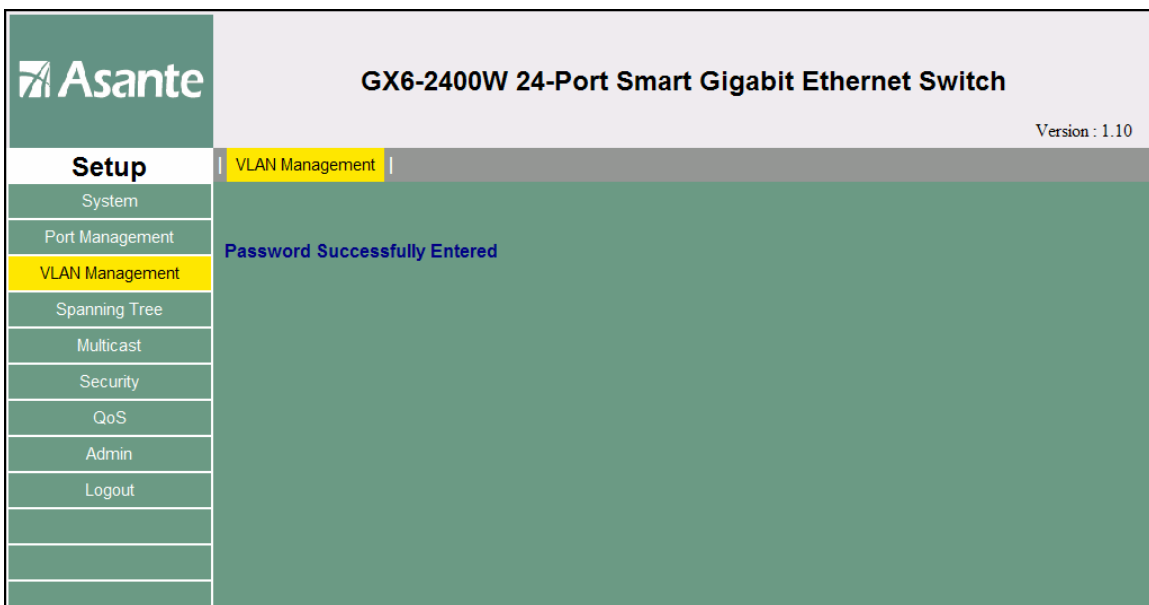
VLAN is an acronym for virtual local area network. A basic VLAN setup can divide a switch into two separate LANs or collision domains. Each LAN is separate and devices in the two VLANs cannot communicate with each other. Broadcasts do not cross the VLAN border. With a 24 port switch, equipment now performs as though the switch has been cut in half, and turned into two separate boxes. Unless other measures are taken, there is no communication between the two groups of ports. Many switches support the creation of multiple VLANs, with the ability to designate which ports are in which VLAN.

VLANs have demonstrated their usefulness in many implementations. Whenever there is a need to keep resources separate and maintain secure private LANs, VLANs are a favored choice. Many Asante products support VLANs. This White Paper provides examples of VLAN setup on both GX and IntraCore Asante switches.

Example

By default, all ports are in the same VLAN, VLAN1. When a new VLAN, say VLAN2 is created, specific ports are designated as members of the new VLAN. The GX6 uses a graphical interface to set this up. The following are screen shots from a GX6-2400W.

Once logged in, select VLAN management. Click VLAN management next to Setup



Now enter “2” for VLAN ID. Click Port Config to add ports to VLAN 2.

Setup

VLAN Management

System

Port Management

VLAN Management

Spanning Tree

Multicast

Security

QoS

Admin

Logout

Port Segmentation (VLAN) Configuration

Add a VLAN

VLAN ID

VLAN Configuration List

1							
---	--	--	--	--	--	--	--

In this example we select ports 20-23 then click Save Settings.

The screenshot shows the web interface for an Asante GX6-2400W 24-Port Smart Gigabit Ethernet Switch. The interface is titled "GX6-2400W 24-Port Smart Gigabit Ethernet Switch" and "Version : 1.10". The left sidebar contains a "Setup" menu with options: System, Port Management, VLAN Management (highlighted), Spanning Tree, Multicast, Security, QoS, Admin, and Logout. The main content area is titled "VLAN Management" and "VLAN Setup". It displays a table for "VLAN ID: 2" with columns for "Port" and "Member". The table lists ports 1 through 24. Ports 20, 21, 22, and 23 have checkboxes that are checked, indicating they are members of VLAN 2. Below the table are "Save Settings" and "Refresh" buttons. The browser address bar shows "http://192.168.123.5/vlan?submit=Refresh".

VLAN ID: 2			
Port	Member	Port	Member
Port 1	<input type="checkbox"/>	Port 13	<input type="checkbox"/>
Port 2	<input type="checkbox"/>	Port 14	<input type="checkbox"/>
Port 3	<input type="checkbox"/>	Port 15	<input type="checkbox"/>
Port 4	<input type="checkbox"/>	Port 16	<input type="checkbox"/>
Port 5	<input type="checkbox"/>	Port 17	<input type="checkbox"/>
Port 6	<input type="checkbox"/>	Port 18	<input type="checkbox"/>
Port 7	<input type="checkbox"/>	Port 19	<input type="checkbox"/>
Port 8	<input type="checkbox"/>	Port 20	<input checked="" type="checkbox"/>
Port 9	<input type="checkbox"/>	Port 21	<input checked="" type="checkbox"/>
Port 10	<input type="checkbox"/>	Port 22	<input checked="" type="checkbox"/>
Port 11	<input type="checkbox"/>	Port 23	<input checked="" type="checkbox"/>
Port 12	<input type="checkbox"/>	Port 24	<input type="checkbox"/>

In the next set of screen shots, on the following page, the result of the VLAN configuration can be observed.

Looking toward the bottom right, notice that the PVID for ports 20-23 has now been set to 2. This indicates they are part of VLAN 2

Asante **GX6-2400W 24-Port Smart Gigabit Ethernet Switch**
Version : 1.10

Setup | VLAN Management |

System
 Port Management
VLAN Management
 Spanning Tree
 Multicast
 Security
 QoS
 Admin
 Logout

VLAN Per Port Configuration

Port	VLAN aware Enabled	Ingress Filtering Enabled	Packet Type	Pvid
Port 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 11	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 13	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 14	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 15	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 16	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1

Done Internet 100%

QoS
 Admin
 Logout

Port 13	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 14	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 15	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 16	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 17	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 18	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 19	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1
Port 20	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	2
Port 21	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	2
Port 22	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	2
Port 23	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	2
Port 24	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/> All <input checked="" type="radio"/> Tagged Only	1

Save Settings Cancel

Done Internet 100%

Here is an example of a basic VLAN setup using the Asante IC3624 CLI. The setup for the IC 36XX, 37XX and 39XXX switches are similar. First, we must create vlan 2.

```
login: admin
password: *****
COMMAND> en
Username: admin
Password: *****
Switch# configuration
Switch(Config)# vlan ?
  add          Create a new VLAN
  delete       Remove a existed VLAN
  ingress      Performs ingress VLAN source port membership check
  port         Configure 802.1Q port parameters for VLANs
  lag          Configure lag to a special VLAN
Switch(Config)# vlan add ?
  number       Enter a VLAN ID
  range        Enter a range of VLAN ID
Switch(Config)# vlan add number
<2..4094>     Enter a VLAN ID
Switch(Config)# vlan add number 2
Switch(Config)#
```

Next we go to the interfaces we want in VLAN 2 and associate them with VLAN 2 as seen on the next page.

```
Switch(Config)# interface 20
Switch(Interface 20)#
exit          Exit current shell
dot1x        Configure 802.1x mode
lacp         Configure port LACP mode
addport      Add one port to a LAG group
delport      Remove a port from a LAG group
lldp        Configure lldp port level settings
admin-mode   Configure administrative mode on a port
auto-negotiate Configure auto-negotiate mode on a port
speed       Configure port phy parameter
flow-control Configure port flow control
port-security Configure port security
qos         Configure port-based QoS priority mapping
rate-limit  Configure rate limit on a port
storm-control Configure storm control on a port
rmon-counter Configure RMON counter capability on a port
set         Configure an IGMP router port
spanning-tree Configure port spanning-tree
vlan        Configure VLAN properties on a port
interface    Change to another interface
```

```
Switch(Interface 20)# interface 20
Switch(Interface 20)# vlan
participation Join or leave a VLAN
protected     Configure port protected property
dropnq       Configure port drop no 8021q frame
pvid         Configure port PVID
Switch(Interface 20)# vlan participation
exclude      Leave a VLAN
untagged     Join a VLAN with untagged mode
tagged       Join a VLAN with tagged mode
Switch(Interface 20)# vlan participation untagged
<1..4094>    Enter a VLAN ID
Switch(Interface 20)# vlan participation untagged 2
<cr>
Switch(Interface 20)# vlan participation untagged 2
Switch(Interface 20)# interface 21
Switch(Interface 21)# vlan participation untagged 2
Switch(Interface 21)# interface 22
Switch(Interface 22)# vlan participation untagged 2
Switch(Interface 22)# interface 23
Switch(Interface 23)# vlan participation untagged 2
```

To finalize the setup, the PVIDs must be changed so that the interfaces respond to VLAN 2

```
Switch(Interface 23)# vlan
  participation      Join or leave a VLAN
  protected          Configure port protected property
  dropnq            Configure port drop no 8021q frame
  pvid              Configure port PVID
Switch(Interface 23)# vlan pvid 2
Switch(Interface 23)# interface 22
Switch(Interface 22)# vlan pvid 2
Switch(Interface 22)# interface 21
Switch(Interface 21)# vlan pvid 2
Switch(Interface 21)# interface 20
Switch(Interface 20)# vlan pvid 2
Switch(Interface 20)#
```

Our VLAN setup is now complete

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Vlan White Paper

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