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X-Series™ Switch Configuration

Websense® X-Series Appliance

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Websense® X-Series™ Switch Configuration

In this guide:

Switch basics

X-Series appliances come with two Dell PowerConnect M6220 switches. When used with the X10G™, each switch supports two 10G SFP+ ports.

Special support is provided for two common network deployments:

◆ VLAN with high availability (A1/A2 : Active/Standby). See *Configuring VLAN with high availability*, page 8.

◆ No VLAN. See *Configuring No VLAN*, page 10.

The switch ports used and their specific configuration are determined by the network type.

A Microsoft Windows hosted switch configuration tool is provided to simplify the switch configuration process.

> **Important**
> Link aggregation is not supported.

Default switch configuration

Switches A1 and A2 arrive with the following default configuration:

Switch A1

P1 Te1/2/1	**Enabled** 10 gigabit 1518 maximum frame size (configurable) Full duplex Auto negotiation disabled Flow control disabled
P1 Te1/2/2	**Disabled** 10 gigabit 1518 maximum frame size (configurable) Full duplex Auto negotiation disabled Flow control disabled

Other ports are not supported.

Switch A2

P2 Te1/2/1	**Enabled** 10 gigabit 1518 maximum frame size (configurable) Full duplex Auto negotiation disabled Flow control disabled
P2 Te1/2/2	**Disabled** 10 gigabit 1518 maximum frame size (configurable) Full duplex Auto negotiation disabled Flow control disabled

Other ports are not supported.

Accessing a switch

To access switch A1 or A2:

1. Log on to the CMC, go to **I/O Module Overview**, and click the **Launch IOM GUI** button for switch A1 or switch A2.

   If the button isn't available, it's because an IP address has not been configured. See *Assigning switch I/O modules an IP address*, page 4.

2. A logon window displays. Log on. The Dell default credentials are: Username 'root', password 'calvin'. Change these to comply with your organization's security policies.

   The switch home screen shows the status of all ports on the switch. A green port is up (enabled), a blue port is down (disabled).

3. Click on a port to go to its configuration page.
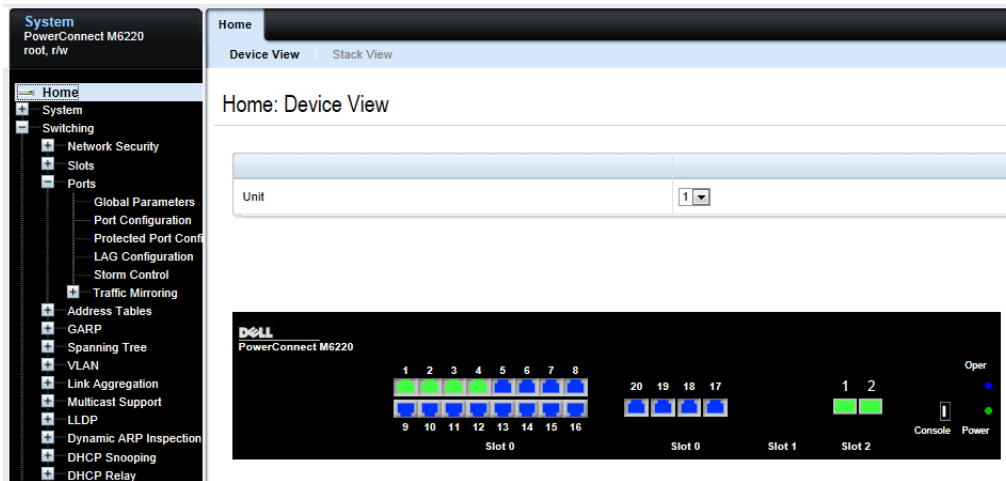
Proceed with your desired configuration changes.

For additional Websense guides for the X10G Chassis and Security Blades, please visit the [X10G support page](#).

Assigning switch I/O modules an IP address

Switches A1 and A2 are accessed through the Chassis Management Controller (CMC). Before they can be accessed, each must be assigned an IP address. To assign an IP address:

1. Log on to the CMC and go to **Chassis Overview > I/O Module Overview > A1 Gigabit Ethernet** (or A2).
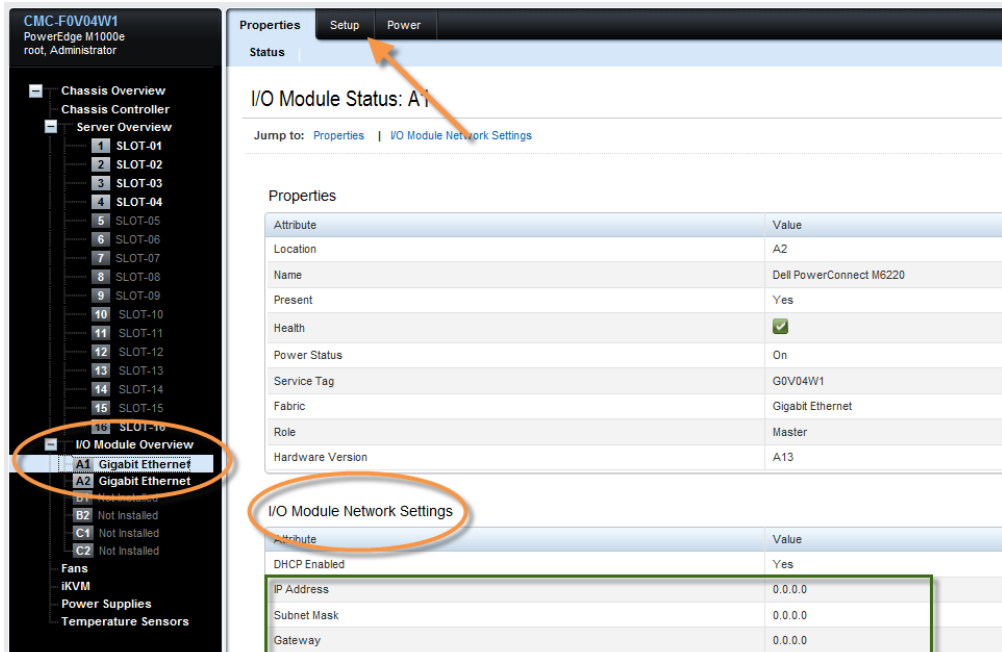
2. Click the **Setup** tab.
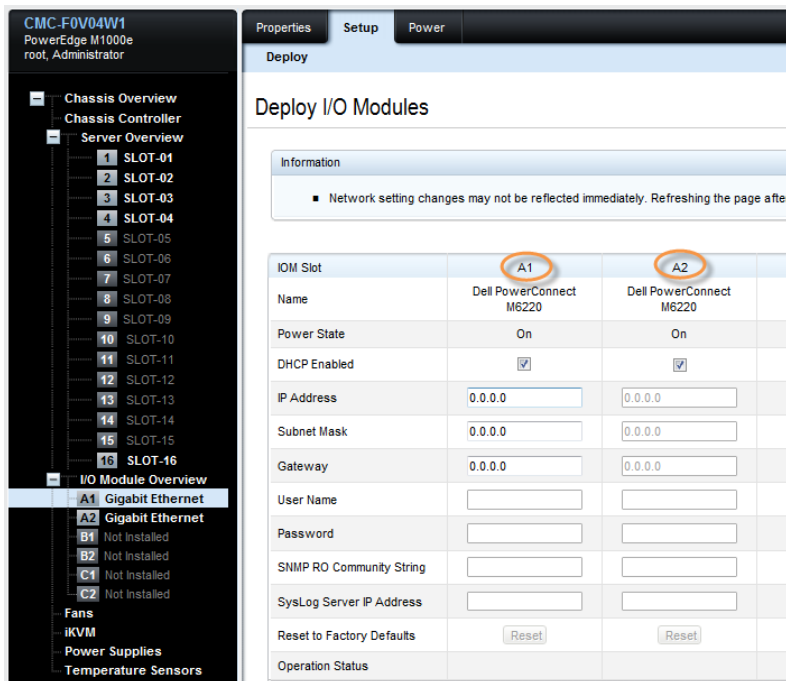
3. For each of A1 and A2, uncheck **DHCP Enabled**, and enter an IP address, subnet mask, and gateway. The IP addresses must be unique.

4. Establish a User Name and Password that meets your organization's security standards. The factory default credentials are:
   User Name = root Password = calvin

5. Click **Apply**. It takes a minute or 2 for the settings to be applied.

   IMPORTANT: The GUI may initially indicate that the settings reverted to the previous values. Wait 2 or 3 minutes for the configuration action to complete and then refresh the page.

To access a switch, go to **Chassis Overview > I/O Module Overview** and click the **Launch IOM GUI** button corresponding to the switch you want to access.

Enabling and disabling ports

Enabling and disabling ports should not be necessary if you plan to use the provided switch configuration tool to configure the switches.

To enable or disable a port:

1. Log on to the CMC, go to **I/O Module Overview**, and click the **Launch IOM GUI** button for switch A1 or A2.

   If the button isn't available, it's because an IP address has not been configured. See the preceding section.

2. A logon window displays. Log on.

The home screen shows the status of all ports on the switch. A green port is up (enabled), a blue port is down (disabled).

3. To enable or disable a port, click on the green or blue area of the port. This opens the **Port Configuration: Detail** page.
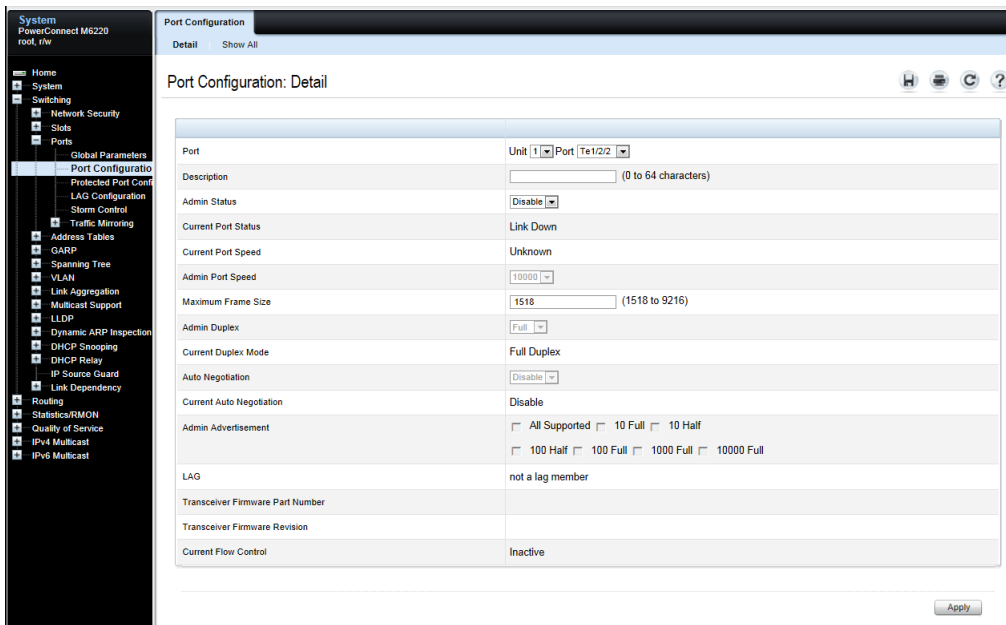
a. Confirm that the **Port** selection is correct. Change to another port if desired.

b. Add a description if desired.

c. Select **Enable** or **Disable** from the **Admin Status** drop down. This determines if the port is enabled or disabled.

d. Examine and adjust other settings as needed and click **Apply**.

   IMPORTANT: The UI may initially indicate that the settings reverted to the previous values. Wait 2 or 3 minutes for the configuration action to complete and then refresh the page.

Configuring VLAN with high availability

> ✓ **Note**
> High availability (HA) between switches A1 and A2
> (RSTP : Active/Standby) is only available when VLAN is
> configured.

Configuring for VLAN with HA requires:

◆ An external upstream switch with a 10G trunk port configured

◆ *VLAN Enabled: Cabling the switches*, page 8

◆ Configuring A1 and A2 with the *X10G switch configuration tool*, page 12

◆ *Configuring VLAN support on a blade*, page 9

VLAN Enabled: Cabling the switches

Chassis switch cabling

The primary port is A1 Te1/2/2 (the lower 10G port (P1)). This port handles all traffic.

The secondary port, for high availability (optional), is A2 Te1/2/2.

With 10G ports use SFP+ cables.

When VLAN is enabled, after running the X10G switch configuration tool, P1 and P2 are trunked together.

> **Important**
> In the X10G switch configuration tool, when prompted for the external port, select the option for **Te1/2/2**.

When cabling is complete, configure the switch with the *X10G switch configuration tool*, page 12.

Upstream switch configuration

Cable appropriately to the upstream switch.

Connecting 10G ports should be in **trunk** mode.

Enable spanning tree on the ports. The mode can be STP, RSTP, or MSTP.

Designate at least one root bridge with a priority number less than 32768. This is the default priority for all switches on the X10G.

Configuring VLAN support on a blade

After configuring the switch to recognize VLAN traffic and direct it appropriately, configure VLAN support on each blade.

> **Important**
> Once you have assigned a VLAN to any appliance interface, returning the appliance to a VLAN-unaware (no VLAN) state requires reimaging the blade.
>
> You can, however, reassign the VLAN ID with the 'set interface vlan' command, described below.

With new installations, you are offered the option to assign a default VLAN to interface P1 as part of the **firstboot** script.

For upgrades, or to add VLAN support after installation, use the appliance CLI as follows:

1. Connect to the blade that you want to configure, and log on as **admin**.
2. Enter the **config** command, then enter the admin password when prompted.
3. Use the **set interface vlan** command to assign a VLAN ID to the first interface. For example:

```
set interface vlan --interface p1 --vid 400
```

4. Use the **set interface vlan** command to assign a VLAN ID to the second interface. For example:

```
set interface vlan --interface p2 --vid 1025
```

5. When you are finished, use the **show interface** command to review the updated configuration.

Configuring No VLAN

Configuring for No VLAN support requires:

◆ An external upstream switch with 10G ports in access mode

◆ *No VLAN: Cabling the switches*, page 10

◆ Configuring A1 and A2 with the *X10G switch configuration tool*, page 12

◆ Optional – *Configuring link aggregation*, page 11

No VLAN: Cabling the switches
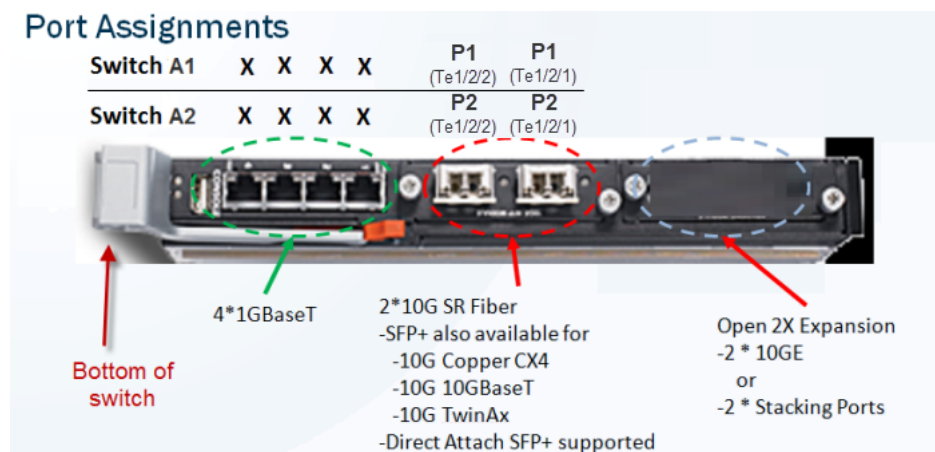
◆ The primary port can be A1 Te1/2/1 or A1 Te1/2/2. Both ports are P1.

If configuring for link aggregation (optional), cable both ports.

P1 is used for all traffic unless a secondary (P2) port is configured.

◆ Optionally, A2 Te1/2/1 or Te1/2/2 can be used for egress traffic. Both ports are P2.

If configuring for link aggregation (optional), cable both ports.

With 10G ports use SFP+ cables.

When cabling is complete, configure the switch with the *X10G switch configuration tool*, page 12.

Configuring link aggregation

In link aggregation, both ports are active and share the load. If one port fails, the remaining port assumes all of the load.

Requirement: The upstream connections must be on the same switch or to switches in the same stack.

To configure link aggregation on the A1 or A2 switch:

1. Ensure that both Te1/2/1 and Te1/2/2 are enabled.
2. Perform these commands in console mode:

   ```
   interface Te1/2/1

   duplex full

   channel-group 1 mode active

   switchport access vlan 1

   exit

   !

   interface Te1/2/2

   duplex full

   channel-group 1 mode active

   switchport access vlan 1

   exit

   !

   interface port-channel 1

   switchport access vlan 1

   exit
   ```

3. On the upstream switch:
   a. Enable the 10 gigabit ports.
   b. Configure link aggregation. See your switch documentation.
   c. Configure each according to your VLAN allocation:

      ```
      switchport access vlan <n>
      ```

      Some older switches require that the VLAN info be configured on both the physical ports and the link-aggregation port.

      Some newer switches require VLAN configuration on link-aggregation port only.

Refer to your switch documentation.

> **Important**
>
> "switchport access vlan 1" is the default configuration in Dell M6220 switches. It does **not** appear in the startup or running configuration scripts.

X10G switch configuration tool

The switch configuration tool allows you to rapidly and accurately configure the X10G switches to support either:

◆ VLAN with high availability

◆ No VLAN (VLAN unaware); no support for high availability

Before you begin, download the switch configuration tool to a Windows machine in your network. The Windows machine must be able to connect to the appliance CMC via a web browser. To download the switch tool:

1. Open a browser and navigate to www.mywebsense.com.
2. Log in when prompted, then select the **Downloads** tab.
3. Select **Websense X10G Base Configuration** from the Product drop-down list, then select **7.8.4** from the Version list.
4. Click the **download** link for the Switch Configuration Tool.
5. When the download is complete, extract the archive to a temporary directory.

Using the tool requires the:

◆ CMC IP address

◆ CMC root password

◆ Enable password for switches A1 and A2

To configure the switch:

1. Use the CMC manager to verify that SSH connections are enabled on the **Chassis Overview > Network > Services** page under **SSH Configuration**.
2. Navigate to the Windows folder containing the switch configuration tool, and double-click **switch-tool.exe** to launch the tool.
3. When prompted, enter the **CMC IP address**.
4. Enter **root** as the **CMC user name**, followed by the root password.

5. Enter the **Enable password for switch A1**, followed by the **Enable password for switch A2**.

```
Welcome to the Websense X-Series switch tool, used to configure the Dell M6220
switches on the X10G Appliance.


Please enter the CMC IP address: 10.203.23.20
Enter the CMC root password: ********
Enter the Enable password for switch A1: *********
Enter the Enable password for switch A2: *********_
```

The switch tool displays the current running configuration for switch A1, followed by the configuration for switch A2. For example:

```
 Show running configuration for switch a1:

Port           Status        Mode      Vlan
--------       ----------    ------    ---------------------
Gi1/0/1                      access    1
Gi1/0/2                      access    1
Gi1/0/3                      access    1
Gi1/0/4                      access    1
Gi1/0/5                      access    1
Gi1/0/6                      access    1
Gi1/0/7                      access    1
Gi1/0/8                      access    1
Gi1/0/9                      access    1
Gi1/0/10                     access    1
Gi1/0/11                     access    1
Gi1/0/12                     access    1
Gi1/0/13                     access    1
Gi1/0/14                     access    1
Gi1/0/15                     access    1
Gi1/0/16                     access    1


Gi1/0/17       shutdown      access    1
Gi1/0/18       shutdown      access    1
Gi1/0/19       shutdown      access    1
Gi1/0/20       shutdown      access    1
Te1/2/1                      access    1
Te1/2/2        shutdown      access    1

-----------------------------------------------------------------------
STP status: off
STP protocol:
Bridge ID: 32768:D067.E57D.97B2
=======================================================================
```

6. Select the X10G external port that is connected to your third-party upstream switch. Use option 6 (Te1/2/2) for VLAN enabled. Use 5 or 6 for no VLAN.

```
Select the external port that is connected to the upstream switch:

 1. Gi1/0/17
 2. Gi1/0/18
 3. Gi1/0/19
 4. Gi1/0/20
 5. Te1/2/1
 6. Te1/2/2

You have entered:   6_
```

7. When prompted to select a deployment option, enter option **1** to enable VLAN support and switch high availability, or option **2** to leave the switch in No VLAN (not VLAN-aware) mode.

```
Select the option that best describes your deployment. Both options are
supported with both Web and Email modes.

1. The chassis or blades are VLAN-aware. The port of the upstream switch
   that is connected to the A1/A2 external port is set to trunk mode to
   support VLAN use and high availability.

2. The chassis and blades are not VLAN-aware. The port of the upstream switch
   that is connected to the A1/A2 external port is set to access mode, and
   does not support VLAN use and high availability.

You have entered option:  1
```

8. If you selected option **1**:

   a. You are prompted to configure VLAN settings for one or more blades.

      To start, enter the blade number or numbers in a comma-separated list (1,2,3), range format (1-3), or a combination (1,2, 5-8).

      • All of the selected blades will receive traffic for the same VLAN or VLANs.

      • After configuring the first blade or set of blades, you will be given the option to configure additional sets of VLAN settings for your remaining blades.

   b. Enter the **VLAN ID** or IDs to configure the traffic that will be directed to the selected blades. VLAN IDs can be entered in a comma-separated list (100-102), range format (100,101), or a combination.

      Each blade supports a maximum of 3 VLANs.

   c. If you have additional blades to configure, enter **yes**, and repeat steps a and b.

      When you are finished, enter **no** to continue with the next step.

   d. Specify whether to perform a full factory reset before reconfiguring each switch, then review the configuration settings displayed. There is no need to perform a factory reset unless you know there is a problem with the switch configuration.

9. If the new settings look correct, enter **1** to start the switch reconfiguration process.

   Progress information is displayed as first switch A1, then switch A2, is configured.

   The switch reconfiguration process should take only a few minutes.

10. When the switch reconfiguration is complete, press any key to exit the switch configuration tool.

If you have configured for VLAN support, ensure that your upstream switch is configured to send VLAN traffic to the X10G, and then configure individual blades to recognize VLAN traffic. See *Configuring VLAN support on a blade*, page 9, for instructions.

Installing a new switch

If you must replace a switch:

1. Contact Websense Technical Support for assistance.

2. When replacing the switch make certain that it is fully seated in the chassis, and that the switch lever is latched.

3. During the replacement procedure, ask the Technical Support specialist to demonstrate that the new switch is functioning properly, per your switch configuration requirements.