

Configure Subnet-Based Virtual Local Area Network (VLAN) Groups to VLAN on Cisco Business 350 Series Switches

Objective

This article provides instructions on how to map subnet-based groups to VLAN on a Cisco Business 350 series switch.

Applicable Devices | Software Version

- CBS350 ([Data Sheet](#)) | 3.0.0.69 ([Download latest](#))
- CBS350-2X ([Data Sheet](#)) | 3.0.0.69 ([Download latest](#))
- CBS350-4X ([Data Sheet](#)) | 3.0.0.69 ([Download latest](#))

Introduction

A Virtual Local Area Network (VLAN) allows you to logically segment a Local Area Network (LAN) into different broadcast domains. In scenarios where sensitive data may be broadcast on a network, VLANs can be created to enhance security by designating a broadcast to a specific VLAN. Only users that belong to a VLAN are able to access and manipulate the data on that VLAN. VLANs can also be used to enhance performance by reducing the need to send broadcasts and multicasts to unnecessary destinations.

Networking devices on which multiple protocols are running cannot be grouped to a common VLAN. Non-standard devices are used to pass traffic between different VLANs in order to include the devices participating in a specific protocol. For this reason, the user cannot take advantage of the many features of VLAN.

VLAN groups are used to load balance the traffic on a Layer 2 network. The packets are distributed with respect to different classifications and are assigned to VLANs. Many different classifications exist, and if more than one classification scheme is defined, the packets are assigned to the VLAN in this order:

- Tag - The VLAN number is recognized from the tag.
- MAC-Based VLAN - The VLAN is recognized from the source Media Access Control (MAC)-to-VLAN mapping of the ingress interface. To learn how to configure this feature, click [here](#) for instructions.
- Subnet-Based VLAN - The VLAN is recognized from the source IP Subnet-to-VLAN mapping of the ingress interface.
- Protocol-Based VLAN - The VLAN is recognized from the Ethernet type Protocol-to-VLAN mapping of the ingress interface. To learn how to configure this feature, click [here](#) for instructions.
- PVID - VLAN is recognized from the port default VLAN ID.

The subnet-based group VLAN classification enable packets to be classified according to their subnet. You can then define subnet-to-VLAN mapping per interface. You can also define several subnet-based VLAN groups, which each group containing different subnets. These groups can be

assigned to specific ports or LAGs. Subnet-based VLAN groups cannot contain overlapping ranges of subnets on the same port. This article provides instructions on how to map subnet-based groups to VLAN on a switch.

If you are unfamiliar with terms in this document, check out [Cisco Business: Glossary of New Terms](#).

Configure Subnet-Based VLAN Groups to VLAN on the Switch

Map a Subnet-Based VLAN Group to VLAN

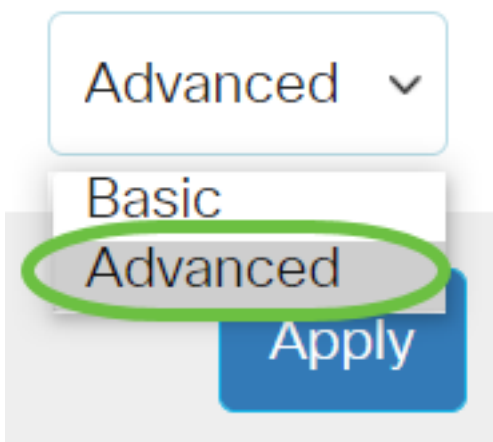
To map a subnet group to a port, the port must not have Dynamic VLAN Assignment (DVA) configured on it. Several groups can be bound to a single port, with each port being associated to its own VLAN. It is possible to map several groups to a single VLAN as well.

Important: Before proceeding with the instructions below, make sure a subnet-based VLAN group has already been configured. For instructions, click [here](#).

Follow the steps below to map a subnet-based VLAN group to VLAN:

Step 1

Log in to the web-based utility and choose **Advanced** from the Display Mode drop-down list.



Step 2

Choose **VLAN Management > VLAN Groups > Subnet-Based Groups to VLAN**.

▼ VLAN Management

1

VLAN Settings

Interface Settings

Port to VLAN

Port VLAN Membership

▶ VLAN Translation

Private VLAN Settings

GVRP Settings

▼ VLAN Groups

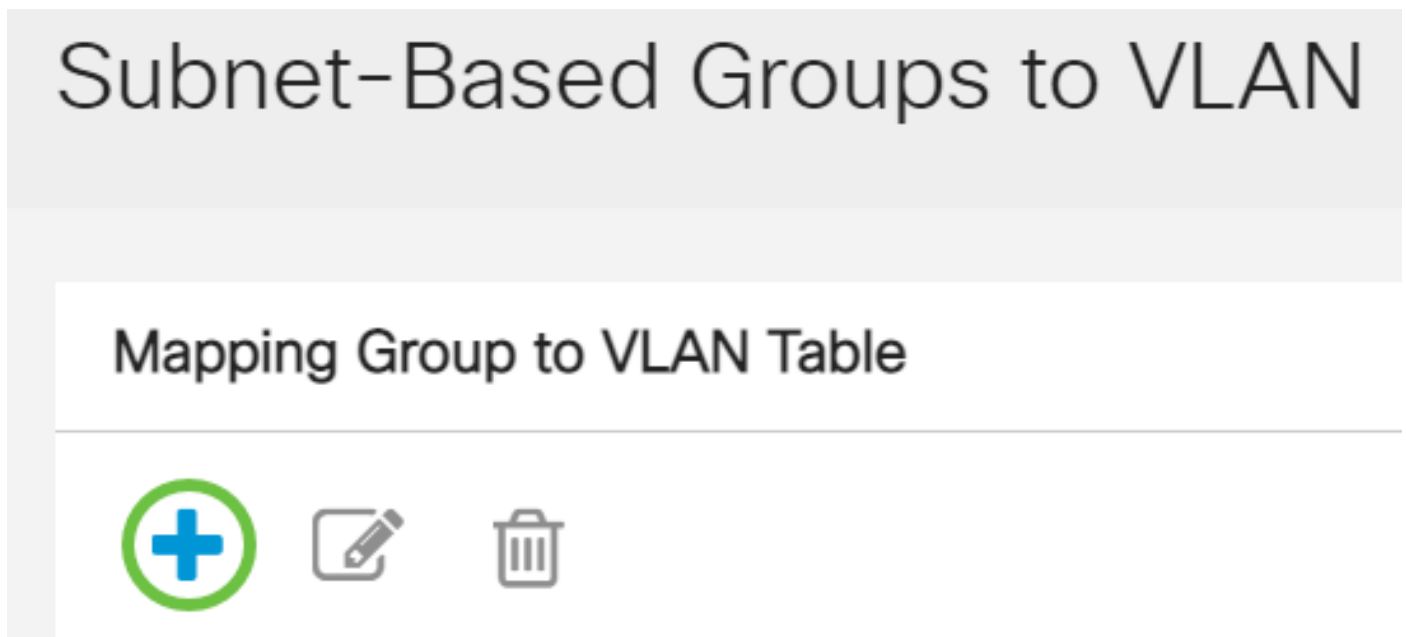
2

▼ VLAN Groups

MAC-Based Groups

Step 3

In the Mapping Group to VLAN Table, click **Add**.



Step 4

The type of the group is displayed in the Group Type area automatically. Click one of the following interface type radio buttons in the Interface area to which the VLAN subnet-based group is assigned and choose the desired interface from the drop-down list.

The options are:

- Unit - From the Unit and Port drop-down lists choose the port to configure. The unit identifies whether the switch is the Active or Member in the stack.
- LAG - Choose the desired LAG from the LAG drop-down list. A Link Aggregate Group (LAG) is used to link multiple ports together. LAGs multiply bandwidth, increase port flexibility, and provide link redundancy between two devices to optimize port usage.

Add Group to VLAN Mapping

Group Type: Subnet-Based

Interface:



Port

GE4



LAG

1



In this example, Port GE4 of is used.

Step 5


From the Group ID drop-down list, choose the subnet-based VLAN Group ID to filter the traffic through the chosen port or LAG.

Group ID:

In this example, 2 is used.

Step 6

In the *VLAN ID* field, enter the VLAN ID to which the traffic from the VLAN group is forwarded.

 VLAN ID: (Range: 1 - 4094, Default: 1)

In this example, 20 is used. To know how to configure VLAN settings on your switch, click [here](#) for instructions.

Step 7

Click **Apply** then click **Close**. The subnet-based group port is mapped to the VLAN.

Add Group to VLAN Mapping

X

Group Type: Subnet-Based

Interface: Port LAG

Group ID:

 VLAN ID: (Range: 1 - 4094, Default: 1)

Apply

Close

Step 8

Click **Save** to save settings to the startup configuration file.



Subnet-Based Groups to VLAN

Mapping Group to VLAN Table



<input type="checkbox"/>	Interface	Group ID	VLAN ID
<input type="checkbox"/>	GE4	2	20

You should now have mapped a subnet-based VLAN group to VLAN on your switch.

Edit Subnet-Based VLAN Group

Step 1

Choose **VLAN Groups > Subnet-Based Groups to VLAN**.

Step 2

In the Mapping Group to VLAN Table, check the box next to the subnet-based VLAN group you would like to edit.

Subnet-Based Groups to VLAN

Mapping Group to VLAN Table



<input checked="" type="checkbox"/>	Interface	Group ID	VLAN ID
<input checked="" type="checkbox"/>	GE4	2	20



GE4

2

20

Step 3

Click the **Edit** button to edit a mapped subnet-based VLAN group.

Subnet-Based Groups to VLAN

Mapping Group to VLAN Table



<input checked="" type="checkbox"/>	Interface	Group ID	VLAN ID
<input checked="" type="checkbox"/>	GE4	2	20

Step 4 (Optional)

In the *VLAN ID* field, enter the VLAN ID to which the traffic from the VLAN group is forwarded.

Edit Group to VLAN Mapping

Group Type: Subnet-Based

Interface: GE4

Group ID: 2

 VLAN ID: (Range: 1 - 4094, Default: 1)

In this example, 30 is used.

Step 5

Click **Apply** then click **Close**.

Edit Group to VLAN Mapping

Group Type: Subnet-Based
Interface: GE4
Group ID: 2
VLAN ID: 30 (Range: 1 - 4094, Default: 1)

Apply

Close

Step 6

Click Save to save settings to the startup configuration file.



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Subnet-Based Groups to VLAN

Mapping Group to VLAN Table



Interface

Group ID

VLAN ID

GE4

2

30

The subnet-based VLAN group mapping should now have been edited from your switch.

Delete Subnet-Based VLAN Group

Step 1

Choose **VLAN Groups > Subnet-Based Groups to VLAN**.

Step 2

In the Mapping Group to VLAN Table, check the box next to the subnet-based VLAN group you would like to delete.




Subnet-Based Groups to VLAN

Step 3

Click the **Delete** button to delete the subnet-based VLAN group.

Subnet-Based Groups to VLAN





Mapping Group to VLAN Table

<input checked="" type="checkbox"/>	Interface	Group ID	VLAN ID
<input checked="" type="checkbox"/>	GE4	2	30

Step 4

Click **Save** to save settings to the startup configuration file.

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Subnet-Based Groups to VLAN

Success. To permanently save the configuration, go to the [File Operations](#) page of the switch.

The subnet-based VLAN group mapping should now have been deleted from your switch.

You have now configured subnet-based VLAN groups to VLAN on your Cisco Business 350 series switch.