



Distributing Device Alias Services

Switches in the Cisco Nexus 5000 Series support Distributed Device Alias Services (device aliases) on a fabric-wide basis.

This chapter includes the following sections:

- [Information About Device Aliases, page 17-1](#)
- [Device Alias Databases, page 17-3](#)
- [Legacy Zone Alias Conversion, page 17-7](#)
- [Database Merge Guidelines, page 17-8](#)
- [Default Settings, page 17-9](#)

Information About Device Aliases

When the port WWN (pWWN) of a device must be specified to configure features (for example, zoning, DPVM, or port security) in a Cisco Nexus 5000 Series switch, you must assign the correct device name each time you configure these features. An inaccurate device name may cause unexpected results. You can circumvent this problem if you define a user-friendly name for a pWWN and use this name in all the configuration commands as required. These user-friendly names are referred to as *device aliases* in this chapter.

This section includes the following topics:

- [Device Alias Features, page 17-1](#)
- [Device Alias Requirements, page 17-2](#)
- [Zone Aliases Versus Device Aliases, page 17-2](#)

Device Alias Features

Device aliases have the following features:

- The device alias information is independent of the VSAN configuration.
- The device alias configuration and distribution is independent of the zone server and the zone server database.
- You can import legacy zone alias configurations without losing data.

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- The device alias application uses the Cisco Fabric Services (CFS) infrastructure to enable efficient database management and distribution. Device aliases use the coordinated distribution mode and the fabric-wide distribution scope (see [Chapter 7, “Using Cisco Fabric Services”](#)).
- Basic and enhanced modes. See the [“Device Alias Modes” section on page 17-3](#).
- Device aliases used to configure zones, IVR zones, or port security features are displayed automatically with their respective pWWNs in the **show** command output.

Device Alias Requirements

Device aliases have the following requirements:

- You can only assign device aliases to pWWNs.
- There must be a one-to-one relationship between the pWWN and the device alias that maps to it.
- A device alias name is restricted to 64 alphanumeric characters and may include one or more of the following characters:
 - a to z and A to Z
 - Device alias names must begin with an alphabetic character (a to z or A to Z).
 - 1 to 9
 - - (hyphen) and _ (underscore)
 - \$ (dollar sign) and ^ (up caret)

Zone Aliases Versus Device Aliases

[Table 17-1](#) compares the configuration differences between zone-based alias configuration and device alias configuration.

Table 17-1 Comparison Between Zone Aliases and Device Aliases

Zone-Based Aliases	Device Aliases
Aliases are limited to the specified VSAN.	You can define device aliases without specifying the VSAN number. You can also use the same definition in one or more VSANs without any restrictions.
Zone aliases are part of the zoning configuration. The alias mapping cannot be used to configure other features.	Device aliases can be used with any feature that uses the pWWN.
You can use any zone member type to specify the end devices.	Only pWWNs are supported.
Configuration is contained within the zone server database and is not available to other features.	Device aliases are not restricted to zoning. Device alias configuration is available to the FCNS, zone, fcping, and traceroute applications.

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Device Alias Databases

The device alias feature uses two databases to accept and implement device alias configurations.

- Effective database—The database currently used by the fabric.
- Pending database—Your subsequent device alias configuration changes are stored in the pending database.

If you modify the device alias configuration, you need to commit or discard the changes as the fabric remains locked during this period.

This section includes the following topics:

- [Device Alias Modes, page 17-3](#)
- [Changing Device Alias Mode Guidelines, page 17-3](#)
- [Configuring Device Alias Modes, page 17-4](#)
- [About Device Alias Distribution, page 17-5](#)
- [Distributing the Device Alias Database, page 17-5](#)
- [About Creating a Device Alias, page 17-5](#)
- [Creating a Device Alias, page 17-6](#)
- [Committing Changes, page 17-6](#)
- [Discarding Changes, page 17-7](#)

Device Alias Modes

You can specify that aliases operate in basic or enhanced modes.

When operating in basic mode, which is the default mode, the device alias is immediately expanded to a pWWN. In basic mode, when device aliases are changed to point to a new HBA, for example, that change is not reflected in the zone server. Users must remove the previous HBA's pWWN, add the new HBA's pWWN, and then reactivate the zoneset.

When operating in enhanced mode, applications accept a device alias name in its “native” format. Instead of expanding the device alias to a pWWN, the device alias name is stored in the configuration and distributed in its native device alias format. So applications such as zone server, PSM or DPVM can automatically keep track of the device alias membership changes and enforce them accordingly. The primary benefit of operating in enhanced mode is that you have a single point of change.

Whenever you change device alias modes, the change is distributed to other switches in the network only if device alias distribution is enabled or on. Otherwise, the mode change only takes place on the local switch.



Note

Enhanced mode, or native device alias-based configurations are not accepted in interop mode VSANs. IVR zoneset activation will fail in interop mode VSANs if the corresponding zones have native device alias-based members.

Changing Device Alias Mode Guidelines

When changing device alias modes, follow these guidelines:

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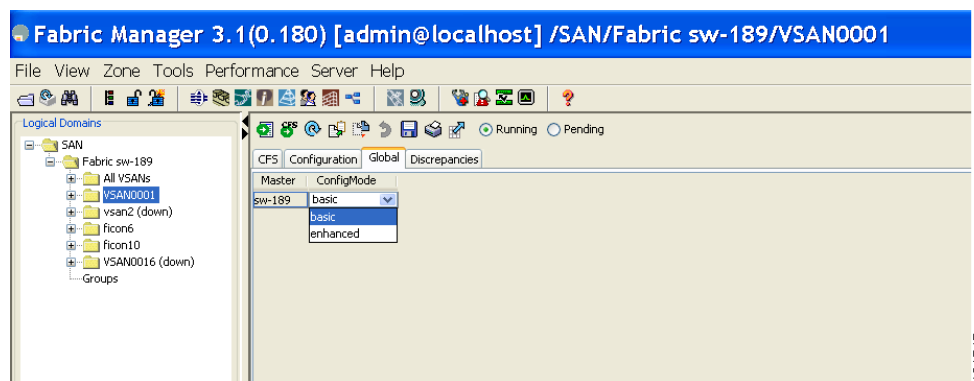
- If two fabrics running in different device alias modes are joined together, the device alias merge will fail. There is no automatic conversion to one mode or the other during the merge process. In this situation, you must to select one mode over the other.
- Before changing from enhanced to basic mode, you must first explicitly remove all native device alias-based configurations from both local and remote switches, or, replace all device alias-based configuration members with the corresponding pWWN.
- If you remove a device alias from the device alias database, all applications will automatically stop enforcing the corresponding device alias. If that corresponding device alias is part of an active zoneset, all the traffic to and from that pWWN is disrupted.
- Renaming the device alias not only changes the device alias name in the device alias database, but also replaces the corresponding device alias configuration in all the applications.
- When a new device alias is added to the device alias database, and the application configuration is present on that device alias, it automatically takes effect. For example, if the corresponding device alias is part of the active zoneset and the device is online, then zoning is enforced automatically. You do not have to reactivate the zoneset.
- If a device alias name is mapped to a new HBA's pWWN, then the application's enforcement changes accordingly. In this case, the zone server automatically enforces zoning based on the new HBA's pWWN.

Configuring Device Alias Modes

To configure device aliases to operate in enhanced mode using Fabric Manager, perform this task:

-
- Step 1** Expand **End Devices**, and then choose **Device Alias** in the Physical Attributes pane.
You see the device alias configuration in the Information pane as shown in [Figure 17-1](#).
- Step 2** Click the **Mode** tab.
- Step 3** Choose **enhanced** from the ConfigMode drop-down list.

Figure 17-1 Configuring Modes



- Step 4** Click **Apply Changes** to commit and distribute these changes, or click **Undo Changes** to discard any unsaved changes.
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About Device Alias Distribution

By default, device alias distribution is enabled. The device alias feature uses CFS to distribute the modifications to all switches in a fabric.

If device alias distribution is disabled, database changes are not distributed to the switches in the fabric. The same changes would have to be performed manually on all switches in the fabric to keep the device alias database up-to-date. Database changes immediately take effect, so there would not be any pending database and commit or abort operations either. If you have not committed the changes and you disable distribution, then a commit task will fail.

The following example displays a failed device alias status:

Distributing the Device Alias Database

To enable the device alias distribution using Fabric Manager, perform this task:

- Step 1** Expand **End Devices**, and then choose **Device Alias** in the Physical Attributes pane. You see the device alias configuration in the Information pane as shown in [Figure 17-2](#).

Figure 17-2 Device Aliases in Fabric Manager

Master	Device Alias	WWN
sw172-22-46-221	sdv-1	Cisco 50:00:53:00:01:25:90:01
sw172-22-46-221	sdv-1-3	Cisco 50:00:53:00:01:16:90:01
sw172-22-46-221	sdv-4001-1	Cisco 50:00:53:00:00:8d:8f:a1
sw172-22-46-221	myDevAliasJMI-1	JMI 10:00:00:01:73:00:df:0a

- Step 2** Click the **CFS** tab.
- Step 3** Choose **enable** from the Feature Admin column to enable switch aliases.
- Step 4** Choose **commitChanges** from the Config Action column for the newly enabled switches.
- Step 5** Click **Apply Changes** to commit and distribute these changes, or click **Undo Changes** to discard any unsaved changes.

About Creating a Device Alias

When you perform any device alias configuration task (regardless of which device alias task), the fabric is automatically locked for the device alias feature. Once you lock the fabric, the following situations apply:

- No other user can make any configuration changes to this feature.
- A copy of the effective database is obtained and used as the pending database. Subsequent modifications are made to the pending database. The pending database remains in use until you commit the modifications to the pending database or discard (**abort**) the changes to the pending database.

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Creating a Device Alias

To lock the fabric using Fabric Manager, perform this task:

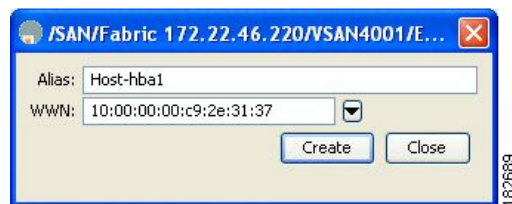


Note

You create a device alias for a locked fabric in the pending database.

- Step 1** Expand **End Devices**, and then choose **Device Alias** in the Physical Attributes pane.
You see the device alias configuration in the Information pane.
- Step 2** Click the **Configuration** tab and click the **Create Row** icon.
You see the Create Device Alias dialog box as shown in [Figure 17-3](#).

Figure 17-3 Create Device Alias Dialog Box



- Step 3** Complete the Alias name and pWWN fields.
- Step 4** Click **Create** to create this alias.

Committing Changes

If you commit the changes made to the pending database, the following events occur:

1. The pending database content overwrites the effective database content.
2. The pending database is distributed to the switches in the fabric and the effective database on those switches is overwritten with the new changes.
3. The pending database is emptied of its contents.
4. The fabric lock is released for this feature.

To commit the changes to the device alias database using Fabric Manager, perform this task:

- Step 1** Expand **End Devices**, and then choose **Device Alias** in the Physical Attributes pane.
You see the device alias configuration in the Information pane.
- Step 2** Click the **CFS** tab.
- Step 3** Choose **enable** from the Feature Admin column to enable switch aliases.
- Step 4** Choose **commitChanges** from the Config Action column for the newly enabled switches.

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- Step 5** Click **Apply Changes** to commit and distribute these changes, or click **Undo Changes** to discard any unsaved changes.
-

Discarding Changes

If you discard the changes made to the pending database, the following events occur:

1. The effective database contents remain unaffected.
2. The pending database is emptied of its contents.
3. The fabric lock is released for this feature.

To discard the device alias session using Fabric Manager, perform this task:

- Step 1** Expand **End Devices**, and then choose **Device Alias** in the Physical Attributes pane.
You see the device alias configuration in the Information pane.
- Step 2** Click the **CFS** tab.
- Step 3** Choose **abort** from the Config Action column for the newly enabled switches.
- Step 4** Click **Apply Changes** to discard the changes.
-

Legacy Zone Alias Conversion

You can import legacy zone alias configurations to use this feature without losing data if they satisfy the following restrictions:

- Each zone alias has only one member.
- The member type is pWWN.

If any name or definition conflict exists, the zone aliases are not imported.



Tip

Ensure that you copy any required zone aliases to the device alias database as required by your configuration.

When an import operation is complete, the modified alias database is distributed to all other switches in the physical fabric when you perform the **commit** operation. If you do not want to distribute the configuration to other switches in the fabric, you can perform the **abort** operation and the merge changes are completely discarded.

Using Device Aliases or FC Aliases

You can change whether Fabric Manager uses FC aliases or global device aliases from Fabric Manager Client without restarting Fabric Manager Server.

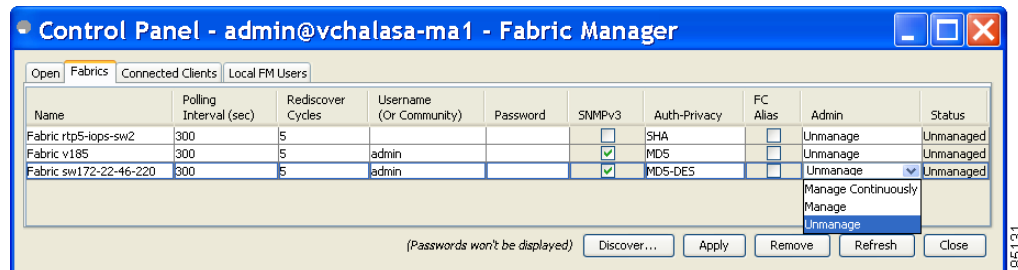
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To change whether Fabric Manager uses FC aliases or global device aliases, perform this task:

Step 1 Click **Server > Admin**.

You see the Control Panel dialog box with the Fabrics tab open (see [Figure 17-4](#)).

Figure 17-4 Control Panel Dialog Box



Step 2 Check the **FC Alias** check box to use FC aliases or uncheck to use global device aliases for each fabric that you are managing with Fabric Manager Server.

Step 3 Click **Apply** to save these changes.

Database Merge Guidelines

When merging two device alias databases, follow these guidelines:

- Verify that two device aliases with different names are not mapped to the same pWWN.
- Verify that two identical pWWNs are not mapped to two different device aliases.
- Verify that the combined number of device aliases in both databases does not exceed 8K (8191 device aliases) in fabrics running Cisco MDS SAN-OS release 3.0 (x) and earlier, and 20K in fabrics running Cisco MDS SAN-OS release 3.1(x) and later.

If the combined number of device entries in both databases exceeds the supported configuration limit, then the merge will fail. For example, if database N has 6000 device aliases and database M has 2192 device aliases, and you are running SAN-OS 3.0(x) or earlier, then this merge operation will fail. Merge operations will also fail if there is a device alias mode mismatch.

For additional information, see the “[CFS Merge Support](#)” section on page 7-6.

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Default Settings

Table 17-2 lists the default settings for device alias parameters.

Table 17-2 **Default Device Alias Parameters**

Parameters	Default
Device alias distribution	Enabled.
Device alias mode	Basic.
Database in use	Effective database.
Database to accept changes	Pending database.
Device alias fabric lock state	Locked with the first device alias task.

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