

Configuring IOA Using Cisco DCNM-SAN

This chapter describes how to configure I/O Accelerator (IOA) using Cisco DCNM-SAN. This chapter contains the following sections:

- IOA Manager, page 4-1
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IOA Manager

The IOA Manager is a graphical user interface (GUI) for configuring and managing IOA. The IOA Manager user interface consists of a navigation pane on the left that displays a hierarchy and an information pane on the right that displays the contents of the item that you click in the navigation pane. The hierarchy is a tree structure that contains elements that you can configure with IOA Manager. It also consists of a toolbar for quick access to the most commonly used options and a Fabric drop-down list box. The Fabric drop-down list box allows you to directly access the fabrics managed by Cisco DCNM-SAN. The Fabric drop-down list box will be available only if more than one fabric is open.



Cisco DCNM-SAN Client standalone supports IOA Manager from Release 5.0(1a).



When you perform some of the time-consuming configuration activities using IOA Manager, the progress bar indicates that the configuration actions are in progress. You need to wait until the action is complete. You can click Stop to cancel the action. However, stopping the action may not roll back the transactions that were executed.

Figure 4-1 shows the IOA Manager interface.

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🐳 IOA Manager		×
a 🕑 🖶 🖿 🖻	Fabric: Fabric_sw-sme-n2	Sites
B 🕹 Sites Site	1	
Name Name		
rtp		
sjc		
		Apply

Figure 4-1 IOA Manager Main Window

Toolbar

The IOA Manager main toolbar provides icons for accessing the most commonly used operations as shown in Table 4-1.

Table 4-1I/O Accelerator Toolbar

lcon	Description
<u>a</u>	Applies the changes.
Q	Refreshes the window.
- 图	Adds a cluster or interface.
Ð	Deletes an existing entry.
2	Displays a real-time chart of the selected switch.

Launching IOA Manager

To launch IOA Manager, follow these steps:

Step 1 Choose **Tools** > **I/O** Acceleration.

You see the Cisco DCNM-SAN main window as shown in Figure 4-2.





When you select IOA Manager, it opens the tree for the fabric that is selected. If there is no active fabric, IOA Manager launches with the first fabric in the tree.

Configuring Sites

A site is described as a named set of switches. You can click the sites node to view the list of defined sites. There are two tables in the information pane: one for the assigned switches on the top and the another one for unassigned switches below the assigned switches table. You can click the name of the site to display the details in the information pane. Only active sites can be used for creating a clusters.

Adding a New Site

To create a new site using IOA Manager, follow these steps:

Step 1 Select **Sites** in the navigation pane.

You see the IOA Manager window as shown in Figure 4-3.

0 IOA Manager		
n (o) 🔚 🖬	Fabric: Fabric_sw-sme-n2	Site
Sites		
Name Name		
rtp		
sjc		
		Apply

Figure 4-3 IOA Manager

Step 2 Click the **Add** icon on the toolbar.

You see the site name dialog box as shown in Figure 4-4.

Figure 4-4	Site Name	Dialog	Box
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Fabric	Manager 4.2(1) [admin@17 🔀	
2	Site Name newsite	
	OK Cancel	247197

Step 3 Enter the site name and then click **OK**.

You see the select switch dialog box as shown in Figure 4-5.





- **Step 4** Select a switch from the drop-down list box and then click **OK**.
- Step 5 Click OK in the dialog box to confirm that you have successfuly created the site.

Removing a Site

To remove a site using IOA Manager, follow these steps:

Step 1 In the navigation pane, click the name of the site you want to delete.

You see the IOA Manager window as shown in Figure 4-6.



Step 2 Click the **Remove** icon on the toolbar.

You see the confirmation dialog box in as shown in Figure 4-7.



Viewing a Site

To view a site using IOA Manager, follow these steps:

Step 1In the navigation pane, click Sites.You see the IOA Manager window as shown in Figure 4-8.

IOA Manager		E
🖾 🖶 🖬 📾	Fabric: Fabric_sw-sme-n2	Site
🕹 Sites Sites		
Ousters Name		
rtp		
sic		
		Apply

Figure 4-8 Viewing Sites Using IOA Manager

- **Step 2** Expand the sites in the hierarchy.
- Step 3 Click the name of the site to view the details in the information pane.You see the site details as shown in Figure 4-9.

Figure 4-9 Viewing Site Details Using IOA Manager

Pabric: Fabric:, Swi-sme-n2 Sittes/ Assigned Switches Name IP Address WWN Sw Version IOA License Grace Period: 27 days 22 hours 38 mins 23 s Add(Penove Unassigned Switches Name IP Address WWN Sw Version IOA License	💝 IOA Manager						
Assigned Switches Name IP Address WWN Sw Version IOA License sw-sme-n2 172.23.144.96 (20:00:00:0d:ec:3f:05 5.0(1) Eval License Grace Period: 27 days 22 hours 38 mins 23 s Add/Remove Unassigned Switches Name IP Address WWN Sw Version IOA License	🗐 👁 📲 🖶 📓			Fabric: Fabri	c_sw-sme-n2		Sites/rtp
Name IP Address WWN Sw Version IOA License Sw-sme-n2 172.23.144.96 20:00:00:0d:ec:3f:05 5.0(1) Eval License Grace Period: 27 days 22 hours 38 mins 23 s Image: Sw-sme-n2 172.23.144.96 20:00:00:0d:ec:3f:05 5.0(1) Eval License Grace Period: 27 days 22 hours 38 mins 23 s Image: Sw-sme-n2 172.23.144.96 20:00:00:0d:ec:3f:05 5.0(1) Eval License Grace Period: 27 days 22 hours 38 mins 23 s Image: Sw-sme-n2 172.23.144.96 20:00:00:0d:ec:3f:05 5.0(1) Eval License Grace Period: 27 days 22 hours 38 mins 23 s Image: Sw-sme-n2 172.23.144.96 20:00:00:0d:ec:3f:05 5.0(1) Eval License Grace Period: 27 days 22 hours 38 mins 23 s Image: Sw-sme-n2 172.23.144.96 20:00:00:0d:ec:3f:05 5.0(1) Eval License Image: Sw-sme-n2 172.23.144.96 20:00:00:0d:ec:3f:05 5.0(1) Eval License Image: Sw-sme-n2 172.23.144.96 20:00:00:0d:ec:3f:05 5.0(1) Eval License Image: Sw-sme-n2 Image: Sw-sme-n2 Image: Sw-sme-n2 10.01 Image: Sw-sme-n2 Image: Sw-sme-n2 Image: Sw-sme-n2 10.01 Image: Sw-sme-n2 Image: Sw-sme-n2 Image: Sw-sme-n2 Image: Sw-sme-n2 Image: Sw-sme-n2 Image: Sw-sme-n2 Image: Sw-	🗏 🛃 Sites	Assign	ned Switches	1			
Custers Sw-sme-n2 172.23.144.96 20:00:00:ect:3f:05 5.0(1) Eval License Grace Period: 27 days 22 hours 38 mins 23 s Add/Remove Unassigned Switches Name IP Address WWN Sw Version IOA License	sk	Name	IP Address	WWN	Sw Version	IOA License	
Add/Remove Unassigned Switches Name IP Address WWN Sw Version IOA License	E Glusters	sw-sme-n2	172.23.144.96	20:00:00:0d:ec:3f:05	5.0(1)	Eval License Grace Period: 27	days 22 hours 38 mins 23 se
Add/Remove Unassigned Switches Name IP Address WWN Sw Version IOA License							
Add/Remove Unassigned Switches Name IP Address WWN Sw Version IOA License							
Add/Remove Unassigned Switches Name IP Address WWN Sw Version IOA License							
Vinassigned Switches Vinassigned Switches Name IP Address WWN Sw Version IOA License							
Unassigned Switches Name IP Address WWN Sw Version IOA License					# AOD/R	emove	
Name IP Address WWN Sw Version IOA License		Unass	igned Switch	es			
		Name	IP /	Address	WWN	Sw Version	IOA License
M Apply							Apply

Adding Switches to a Site

To add a switch to a site, follow these steps:

- **Step 1** In the navigation pane, click **Sites**.
- **Step 2** Select the switches that you want to add from the Unassigned Switches table.
- Step 3 Click Add, and then click Apply.

Removing Switches from a Site

To remove a switch from a site, follow these steps:

Step 1 In the navigation pane, click **Sites**.

You see the IOA Manager window as shown in Figure 4-10.



💙 IOA Manager						X
e 🔿 🖶 🖶			Fabr	ic: Fabric_sw-sme-n2		Sites/sjc
🖃 💑 Sites	Assi	gned Switches	1			
sic	Name	IP Address	WWN	Sw Version	IOA License	
Glusters	sw-sme-n1	172.23.144.95	20:00:00:0d:ec	:3f:52 5.0(1)	Eval License Grace Perio	d: 27 days 14 hours 41 mins 2 sec
- 🐉 ioa-1 - 💓 Interfaces						
Flows						
				🗦 Rem	iove	
	Unas	isigned Switche	25			
	Name	IP A	vddress	WWN	Sw Version	IOA License

- Step 2 Click to select the switches you want to remove from Assigned Switches table.
- Step 3 Click Remove, and then click Apply.

Configuring Clusters

You can select a cluster to see the details in the information pane. The upper table in the information pane displays the members of a named cluster, and the table below displays the statistical information about the cluster's active IOA interfaces.

Adding a New Cluster

To create a new cluster using IOA Manager, follow these steps:

Step 1 Select Cluster in the navigation pane and then click the Add icon on the toolbar.You see the IOA Manager window as shown in Figure 4-11.

	Fabric: Fa	pric_sw-sme-n2	Cluster
Clusters	Carbon	Markey TD	0
Name	Status	master IP	Dires
xa-1	online	172.23.144.95	sjc, rtp

Figure 4-11 IOA Manager - Add Clusters

Step 2 Enter the Cluster name, and then click **OK**.

You see the add Cluster name dialog box as shown in Figure 4-12.



Cluster	Name 🛛 🔀	
?	Cluster Name ioa2	l
	OK Cancel	247190

Step 3 Enter the Cluster name and then click **OK**.

You see the select switch dialog box as shown in Figure 4-13.



Select (Dne 🛛 🔀	
(Select a switch where cluster will be stored	
	rtp-sw1 (rtp) rtp-sw2 (rtp)	
	sjc-sw2 (sjc) sjc-sw1 (sjc)	247181



Select a switch from the drop-down list, and then click **OK**.

<u>Note</u>

You need to select a switch that you would like it to be the master switch as the seed switch when you create the IOA cluster. If you have multiple switches in a site, you may add all the switches in a site that you would like to manage from to the cluster before adding the switches from the remote site.

You see a message box upon successfully creating a cluster as shown in Figure 4-14.

Figure 4-14	Message Box
Message	
Successfully	created cluster ioa2
	ОК
Click OK	

Step 5

Note

If the master switch that you selected is not a member of the site, you may either need to add the switch to an existing site or to create a new site.

Removing a Cluster

To remove a site using IOA Manager, follow these steps:

Step 1 In the navigation pane, click the name of the cluster that you want to delete.

You see the IOA Manager window as shown in Figure 4-15.

Figure 4-15 Removing a Cluster Using IOA Manager

@ 🗏 📑 🖩			Fabric:	Fabric_sw-sm	e-n2	Clust	ers/ioa-
Sites Remove	Cluster	Members					
- sic	Switch	IP Address	Site	Master	IOA License		
Dusters	sw-sme-n1	172.23.144.95	sjc	yes	Eval License Grace Period: 27 day	s 14 hours 41 mins 2 se	conds
- 🗱 joa-1	sw-sme-n2	172.23.144.96	rtp	no	Eval License Grace Period: 27 day	s 22 hours 38 mins 23 s	econds
	Interfa	IP Address	erface	Device Packe	ts In/Out Device Bytes In/Out	Compression Ratio	Errors
	Jincon						

Step 2 Click the **Remove** icon on the toolbar.

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You see the Delete confirmation dialog box as shown in Figure 4-16.

Figure 4-16	Remove Confirm	nation Dialog Box
	X	
Are you sure	you want to remove cluster ioa2?	
Yes	No	24 7184
Click Yes to re	emove the cluster.	

Viewing Clusters

Step 3

To view a cluster using IOA Manager, follow these steps:

Step 1 Click **clusters** in the navigation pane.

You see the IOA Manager window with clusters selected as shown in Figure 4-17.

Figure 4-17 Viewing Clusters Using IOA Manager

@ 📲 🖿 📓		Fabric: Fa	bric_sw-sme-n2	Cluster
🛃 Sites	Clusters			
sic	Name	Status	Master IP	Sites
Clusters	ioa-1	online	172.23.144.95	sjc, rtp
- Mura				
				Apply

- **Step 2** Expand the cluster in the hierarchy.
- Step 3 Click the name of the cluster to view the details in the information pane.You see the IOA Manager window with the cluster details as shown in Figure 4-18.

•			Fabric	: Fabric_sw-sn	ne-n2		Clust	ers/ioa
	Cluster	r Members						
	Switch	IP Address	Site	Master	IOA Lic	ense		
rs	sw-sme-n1	172.23.144.9	15 sjc	yes	Eval Lice	nse Grace Period: 27 day	s 14 hours 41 mins 2 se	conds
-1	sw-sme-n2	172.23.144.9	6 rtp	no	Eval Lice	nse Grace Period: 27 day	rs 22 hours 38 mins 23 s	econds
	Interfa Switch	ace Statistics IP Address	Interface	Device Packe	ts In/Out	Device Bytes In/Out	Compression Ratio	Errors
	Interfa Switch	ace Statistics IP Address	Interface	Device Packe	ts In/Out	Device Bytes In/Out	Compression Ratio	Errors

Figure 4-18 Viewing Cluster Details

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Note
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DCNM does not support configuration of multiple clusters with the same name in a fabric. This action is supported through CLI only.

Configuring Interfaces

You can select the interfaces in a named cluster to see the details in the information pane. The upper table in the information pane displays information about active and configured IOA interface pairs associated with the cluster. The lower table in the information pane displays information about IOA interface candidates that are ready for use in the cluster.

Assigning Interfaces to a Cluster

To add a new interface to a cluster using IOA Manager, follow these steps:

Step 1 Expand the cluster node in the navigation pane and click **Interfaces**.

You see the IOA Manager window as shown in Figure 4-19.

<u>• - </u>			Fabric: Fabric s	w-sme-n2		Cluster	s/ioa-1/Interface
🕹 Sites	As	signed Interfac	es				
- tp	Site	Switch	IP Address	Interface	Status Oper	Status Reason	Status Admin
Clusters	sjc	sw-sme-n1	172.23.144.95	ioa 1 / 1	up	Administratively up	up
- 🐯 ioa-1	rtp	sw-sme-n2	172.23.144.96	ioa 1 / 1	up	Administratively up	up
	Un	assigned Interf	aces	ss Int	dd/Remove	Status Oper 9	Datur Dearon
	Site	SWICCH				status oper	Adrus Reason
	Site	SWIKCH					

Figure 4-19 Adding Interfaces Using IOA Manager

The information pane displays the Assigned Interfaces and Unassigned Interfaces tabs.

- **Step 2** Select one or more interfaces from the Unassigned Interfaces table in the information pane and then click **Add**.
- **Step 3** Click **Apply** to apply changes.

۵, Note

You can change the administrative status of an assigned interface by selecting up or down from the admin status drop-down list box and then click **Apply**.

<u>Note</u>

Cisco DCNM-SAN denotes all the candidate service engines that are not currently provisioned for any service as unconfigured in the unassigned interfaces table. When you select these interfaces, it will automatically provision these service engines for IOA, and configure them as a part of this IOA cluster.

Removing Interfaces from a Cluster

To remove an interface from a cluster, follow these steps:

Step 1 Expand the cluster node in the navigation pane and click Interfaces.You see the IOA Manager window as shown in Figure 4-20.



Figure 4-20 Removing Interfaces Using IOA Manager

- Step 2 Select the switches from the Assigned Interfaces table that you want to remove.
- **Step 3** Click **Remove** to move the switches to Unassigned Interfaces table.
- Step 4 Click Apply.

Configuring Flows

You can select the flows in a named cluster to see the details in the information pane. The upper table in the information pane displays information on active IOA flows. The lower table in the information pane displays information on candidate IOA flows.

Adding a Flow

To add a flow in the cluster using IOA Manager, follow these steps:

Step 1

Expand the Cluster node in the navigation pane and then click Flows.

You see the IOA Manager window displaying the Assigned Flows and Unassigned Flows as shown in Figure 4-21.



If IVR zoneset is activated, Cisco DCNM-SAN will automatically consider the IVR zoneset and list the candidate IVR flows in the Unassigned flows section.

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StoA Manager								
🕼 🔞 📲 🖿 📓								
🗄 💑 Sites		Fabric: Fabric_sw-	sme-n2		Clu	isters	/ioa-	1/Flows
	Assigned Flows (1)						
Clusters Vs	an	Initiator	Target	FlowGroup	Compression	WA	TA	Status
Interfaces IVR	(VSAN100:VSAN2	10:00:00:00:00:00:00	10:00:00:00:00:00:00	flow-1	no	yes	yes	ONLINE
- 27 Flows								
			\$ Add/Remove					
A.				-				_
	Unassigned Flow	s (0)						
Vst	an	V Initia	tor	Т	arget			
	Show All Zoned Flow	Candidates						
	Show all possible z	oned end device pairs					-	Apply

Figure 4-21 Adding Flows Using IOA Manager

- Step 2 Check the Click Show All Zoned Flow Candidates check box to display all the zoned members.
- Step 3 Select one or more switches from the Unassigned Flows in the information pane and then click Add.You see the Add Flows dialog box as shown in Figure 4-22.

Figure 4-22 Flow Configuration Dialog Box

🗬 Add Flow	×	
-Flow Configuration		
Flow Group Name:		
Enable Compression		
Enable Tape Acceleration		
	Add Flow Cancel	000210

- **Step 4** Enter a flow group name.
- Step 5 Check the Enable Compression check box to enable compression.
- **Step 6** Check the **Enable Tape Acceleration** check box to enable tape acceleration.



• Write accleration is enabled by default.

🗬 Configure Flow	1
Both devices in this flow can act as an Initiator or Target. Please select which direction traffic should flow by clicking on the arrow.	
Site: secondarystg EMC 50:06:04:8a:cc:d1:F9:61 EMC 50:06:04:8a:cc:d1:F9:51	
\overline{ullet} Use this direction for the rest of the Flow Group	
Ok	195050

- **Step 7** Click the arrow icon to configure the flow in this direction.
- **Step 8** (Optional) Check the **Use this directon for the rest of the Flow group** check box to apply the same direction to rest of the flow group.

Note You may use this step only if some of the N ports are registered as both initiators and targets, especially in cases of remote replication flow.

Step 9 Click **Add** and then click **Apply**.

Removing a Flow

To add a flow in the cluster using IOA Manager, follow these steps:

Step 1 Expand the Cluster node in the navigation pane and then click Flows.You see the IOA Manager window displaying the Assigned Flows and Unassigned Flows as shown in Figure 4-24.

🕽 IOA Manager									×
		Fabr	ric: Fabric_sw	-sme-n2		Clu	sters	/ioa-	1/Flows
🗄 🛃 Sites	Assigned Fl	ows (1)							
Clusters Gusters	Vsan	Initiator		Target	FlowGroup	Compression	WA	TA	Status
Rows	IVR(YSAN100:VSA	N2 10:00:00:0	0:00:00:00	10:00:00:00:00:00:00:00	flow-1	no	yes	yes	ONLINE
	Unassigned	f Flows (0)		F Remove					
	-		1000		11 Q	arcet			
	Vsan		Y Initia	stor		arget			
	Vsan	d Flow Candidate	s Initia	stor					

Figure 4-24 Removing Flows Using IOA Manager

Step 2 Select one or more switches from the Assigned Flows in the information pane and then click Remove.

Step 3 Click Apply.

Viewing Interface Statistics

To view real-time charts using IOA Manager, follow these steps:

- Step 1 Expand the Cluster node in the navigation pane and click the name of the cluster.
- Step 2 Select a switch from the Interfaces Statistics table in the information pane.You will see the IOA Manager window as shown in Figure 4-25.

Figure 4-25 Select IOA Manager Real-time Chart

🔋 IOA Manager								
🔳 🕀 📲 🖶 🗾			Fabric	: Fabric_sw-sme	-n2		Clust	ers/ioa-1
E 🛃 Sites Chart	Cluste	er Members						
Clusters	Switch	IP Address	Site	Master	IOA Lice	inse		
- Interfaces	sw-sme-n1	172.23.144.9	95 sjc	yes	Eval Licen	ise Grace Period: 27 day	s 14 hours 41 mins 2 se	conds
Flows	sw-sme-n2	172.23.144.9	96 rtp	no	Eval Licen	ise Grace Period: 27 day	s 22 hours 38 mins 23 s	econds
		(and Chabicking						
		face Statistics	Interface	Denice Parks	ts In/Out	Device Rubec In/Orth	Compression Ratio	From
	Interf Switch sw-sme-n1	face Statistics IP Address 172.23.144.95	Interface	Device Packs	ts In/Out	Device Bytes In/Out	Compression Ratio	Errors
	Interf Switch sw-sme-n1 sw-sme-n2	face Statistics IP Address 172.23.144.95 172.23.144.96	Interface ica 1/1 ica 1/1	Device Packe 5/4 4/3	ets In/Out	Device Bytes In/Out 546 / 520 444 / 498	Compression Ratio N/A N/A	Errors 4 4
	Switch sw-sme-n1 sw-sme-n2	face Statistics IP Address 172.23.144.95 172.23.144.96	Interface loa 1/1 loa 1/1	Device Packz 5 / 4 4 / 3	ets In/Out	Device Bytes In/Out 546 / 520 444 / 498	Compression Ratio N/A N/A	Errors 4 4

Step 3 Click the **chart** icon on the toolbar to monitor real-time charts.

You see the chart as shown in Figure 4-26.



Figure 4-26 IOA Manager Real-time Chart