

# **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:

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- Launching IOA Manager, page 5-3
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- Configuring Clusters, page 5-7
- Configuring Interfaces, page 5-11
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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 5-1 shows the IOA Manager interface.

L

IOA Manager Main Window

💽 🖶 🖷 🖷	Fabric: Fabric_sw-sme-n2	Sites
Clusters Name		
rtp		
sjc		

Figure 5-1

### **Toolbar**

The IOA Manager main toolbar provides icons for accessing the most commonly used operations as shown in Table 5-1.

Table 5-1	I/O Accelerator Toolbar

lcon	Description
8	Applies the changes.
C	Refreshes the window.
臣	Adds a cluster or interface.
<b>*</b>	Deletes an existing entry.
	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 5-2.





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 5-3.

OA Manager		2
@ 🔚 🖬	Fabric: Fabric_sw-sme-n2	Site
Clusters		
B Clusters Name		
rtp		
sjc		
		Apply

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

Figure 5-3

You see the site name dialog box as shown in Figure 5-4.

**IOA Manager** 

Fabric	Manager 4.2(1) [admin@17 🔀	
2	Site Name	
	OK Cancel	247197

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

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

Figure 5-5	Select Switch Dialog	Box
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- **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 5-6.



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

You see the confirmation dialog box in as shown in Figure 5-7.



### Step 3

### **Viewing a Site**

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

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

You see the IOA Manager window as shown in Figure 5-8.

IOA Manager		2
	Fabric: Fabric_sw-sme-n2	Site
Sites	5	
Clusters Name		
rtp		
sjc		
		Apply

Figure 5-8 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 5-9.

Figure 5-9	Viewing	Site Details	Using	IOA M	lanagei

OA Manager						
@ 📲 🖶 📓			Fabric: Fabri	_sw-sme-n2		Sites/rt
💺 Sites	Assigned S	witches				
	Name IP A	ddress V	wwn	Sw Version	IOA License	
Clusters	sw-sme-n2 172.2	3.144.96 20	:00:00:0d:ec:3f:05	5.0(1)	Eval License Grace Period:	27 days 22 hours 38 mins 23 se.
				Add/R	lemove	
	Unassigned		-			
	Name	IP Add	dress	WWN	Sw Version	IOA License
						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 5-10.

Figure 5-10 Removing Switches from a Site Using IOA Manager

@ 📲 🖶 📓			Fabric: Fabri	c_sw-sme-n2			Sites/s
Sites	Assi	gned Switches	1				
- i rtp	Name		WWN	Sw Version			
Clusters	sw-sme-n)	172.23.144.95	0:00:00:0d:ec:3f:52	5.0(1)	Eval License Grace Period: 2	7 days 14 hours 41 n	nins 2 sec
ioa-1     imarfaces							
Flows							
	-			Rem	ove		
				- Rem	ove		
		ssigned Switche	s	- Rem	ove		
		-		- Rem	ove Sw Version	IOA License	
	Una	-				IOA License	
	Una	-				IOA License	
	Una	-				IOA License	
	Una	-				IOA License	
	Una	-				IOA License	
	Una	-				IOA License	
	Una	-				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:

#### Configuring Clusters

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**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 5-11.

	Fabric: Fa	pric_sw-sme-n2	Clu	ister
Clusters				
Name	Status	Master IP	Sites	
ioa-1	online	172.23.144.95	sjc, rtp	

Figure 5-11 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 5-12.



Cluster	Name	×	
?	Cluster Name ioa2		
	OK Cancel		247180

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

You see the select switch dialog box as shown in Figure 5-13.



Select	One 🛛 🔀	
<b>(</b>	Select a switch where cluster will be stored	L
$\checkmark$	rtp-sw1 (rtp) 💌	L
	rtp-sw1 (rtp)	н
	rtp-sw2 (rtp) sjc-sw2 (sjc)	Ι.
	sjc-sw2 (sjc)	ģ
	sjc-sw1 (sjc)	- 10 F2 FC



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 5-14.

cluster ioa2
]

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 5-15.

Figure 5-15 Removing a Cluster Using IOA Manager

» - E 🔁 🔤			Fabric:	Fabric_sw-sm	ie-n2	Clust	ers/ioa-:		
Sites Remove		Cluster Members							
- 📄 sjc	Switch	IP Address	Site	Master	IOA License				
Clusters	sw-sme-n1	172.23.144.95	sjc	yes	Eval License Grace Period: 27 day				
- 1 Interfaces	sw-sme-n2	172.23.144.96	rtp	no	Eval License Grace Period: 27 day	s 22 hours 38 mins 23 s	econds		
	-	IP Address Int	terface	Device Packe	ts In/Out Device Bytes In/Out	Compression Ratio	Errors		

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

You see the Delete confirmation dialog box as shown in Figure 5-16.

Figure 5-16	Remove Confirm	nation Dialog Box
	X	1
Are you sure	you want to remove cluster ioa2?	
Yes	No	24 7184
Click <b>Yes</b> to re	move 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 5-17.

Figure 5-17 Viewing Clusters Using IOA Manager

es Clusters I to I spice I co-1 I or-1 P Therfaces P Flows		Fabric: Fab	pric_sw-sme-n2	Clust
i syc Distriere log-1 online 172.23.144.95 sjc,rtp I ba-1 benterfaces		Crahue	Machar ID	Char
Interfaces				

- **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 5-18.

tes	Cluster	Members	Fabric:	Fabric_sw-sm	e-n2	Clust	ers/io
rtp	Switch	IP Address	Site	Master	IOA License		
lusters	sw-sme-n1	172.23.144.95	sjc	yes	Eval License Grace Period: 27 day	s 14 hours 41 mins 2 se	conds
interfaces	sw-sme-n2	172.23.144.96	rtp	no	Eval License Grace Period: 27 day	s 22 hours 38 mins 23 s	econds
	-	nce Statistics	arface	Device Packe	ts In/Out Device Bytes In/Out	Compression Ratio	Erro
	Interfa		rface	Device Packe	ts In/Out Device Bytes In/Out	Compression Rabio	Error

#### Figure 5-18 Viewing Cluster Details

## **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 5-19.

🛞 📲 🖬 📓	As	signed Interfa	Fabric: Fabric_s	w-sme-n2		Cluster	s/ioa-1/Interfa
- I rtp	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
	L						
	▲▼ Un. Site	assigned Inte Switch	rfaces IP Addre		dd/Remove	Status Oper S	Ratus Reason
	Un					Status Oper S	Ratus Reason

Figure 5-19 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 5-20.

	_		Fabric: Fabric_s	w-sme-n2		Cluster	s/ioa-1/Interf
es usters		signed Interfac					
ioa-1	Site	Switch	IP Address	Interface	Status Oper	Status Reason	Status Admin
	sjc	sw-sme-n1	172.23.144.95	ioa 1 / 1	up	Administratively up	up
Z Flows	rtp	sw-sme-n2	172.23.144.96	ioa 1 / 1	up	Administratively up	up
				•	Remove		
	▲▼ Uni	assigned Interi	faces	•	Remove		
		assigned Inter Switch	faces IP Addre			Ratus Oper S	tatus Reason

Figure 5-20 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 5-21.



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.

💽 🗏 🖿 📰		Fabric: Fabric_sw	-sme-n2		Clu	isters	/ioa-	1/Flow			
💑 Sites	Assigned I	Assigned Flows (1)									
Q Custors Stora1 Interfaces ₩ Rows	Vsan	Initiator	Target	FlowGroup	Compression	WA	TA	Status			
	IVR(VSAN100:YS	ANZ 10:00:00:00:00:00:00.	10:00:00:00:00:00:00	Flow-1	no	yes	yes	ONLINE			
		Add/Remove									
	Unassigne	ed Flows (0)		]							
		d Flows (0)		1	arget						

### Figure 5-21 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 5-22.

Figure 5-22 Flow Configuration Dialog Box

🗬 Add Flow		
-Flow Configuration		
Flow Group Name:		
Enable Compression		
Enable Tape Acceleration		
	Add Flow Cancel	047220

- **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.

Figure 5-23

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**Configure Flow Dialog Box** 

🗬 Configure Flow 🔀	
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 Site: primarystg EMC 50:06:04:8a:cc:d1:f9:51	
☑ 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 5-24.

**Removing Flows Using IOA Manager** 

(	Fabric:	Fabric_sw-sme-n2		Clu	isters,	/ioa-:	1/Flow			
🔩 Sites 🖌 🔥	Assigned Flows (1)									
Glusters	Initiator	Target	FlowGroup	Compression	WA	TA	Status			
- Junerfaces IVR(VSA	N100:VSAN2	0:00:00 10:00:00:00:00:00:00	/flow-1	no	yes	yes	ONLINE			
AT.		F Remove	]							
	assigned Flows (0)	F Remove	)T	arget						
Un			) T	arget						

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

Step 3 Click Apply.

Figure 5-24

### **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 5-25.

#### Figure 5-25 Select IOA Manager Real-time Chart

Sites Chart	Cluste	r Members	Fabric	Fabric_sw-sm	e-n2		Clust	ers/ioa-1
Clusters	Switch	IP Address	Site	Master	IOA Lice	nse		
- J Interfaces	sw-sme-n1	172.23.144.9	15 sjc	yes	Eval License Grace Period: 27 days 14 hours 41 mins 2 seco			conds
Flows	sw-sme-n2	172.23.144.9	6 rtp	no	Eval Licen	se Grace Period: 27 day:	s 22 hours 38 mins 23 s	econds
		ace Statistics						
	Inter Switch	IP Address	Interface		kets In/Out	Device Bytes In/Out	Compression Ratio	Errors
	Switch sw-sme-n1	IP Address 172.23.144.95	ioa 1/1	5/4	kets In/Out	546 / 520	N/A	4
	Switch sw-sme-n1	IP Address	ioa 1/1		kets In/Out			

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

You see the chart as shown in Figure 5-26.



Figure 5-26 IOA Manager Real-time Chart