Clarify Inline Set Order for FTD on FMC

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Introduction

This document describes why the interface order for inline sets is different even if the interface naming convention is the equal for all sets.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Secure Firewall Threat Defense (FTD)
- Secure Firewall Management Center (FMC)
- Secure Firewall Extensible Operating System (FXOS)
- REST-API

Components Used

The information in this document is based on these software and hardware versions:

- Secure Firewall Threat Defense version 7.2.5.1
- Secure Firewall Manager Center version 7.2.5.1
- Secure Firewall Extensible Operating System 2.12(1.48)
- Secure Firewall Chassis Manager (FCM)

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Analysis

Case Example

For this case example, a FTD with six (6) interfaces is set up in inline pairs:

Ethernet1/1 (Inside-A) Ethernet1/2 (Outside-A) Ethernet1/3 (Inside-B) Ethernet1/4 (Outside-B) Ethernet1/5 (Inside-C) Ethernet1/6 (Outside-C)

Firewall Management Ce Devices / Secure Firewall Interfaces	onter Overvie	ew Analysis	s Policies	Devices	Objects	Integration	D	eploy Q 🧍	<mark>9</mark> ¢	ĝ admin • 🔐	SECURE
FTD											Cancel
Cisco Firepower 4110 Threat Defense											
Device Routing Interfaces	Inline Sets DHC	P VTEP									
							Q. Search by name			Device Add I	nterfaces 🔻
Interface	Logical Name	Туре	Security Zones	MAC A	ddress (Active/S	itandby)	IP Address	Path Mon	itoring	Virtual Router	
12 Ethernet1/1	Inside-A	Physical						Disabled			1
thernet1/2	Outside-A	Physical						Disabled			1
Ethernet1/3	Inside-B	Physical						Disabled			1
thernet1/4	Outside-B	Physical						Disabled			1
the Ethernet 1/5	Inside-C	Physical						Disabled			1
thernet1/6	Outside-C	Physical						Disabled			1
Ethernet1/8	diagnostic	Physical						Disabled		Global	1
						Displaying 1	-7 of 7 interfaces < < Page	1		of 1	> > c

FTD Interface List

The Inline sets are planned to be configured from **Inside** to **Outside** for each pair, which results in the next set up:

Inline Set A: Inside-A <-> Outside-A
Inline Set B: Inside-B <-> Outside-B
Inline Set C: Inside-C <-> Outside-C

Users expect that the order of the interfaces is displayed in alphabetic order by the interface logical name or the interface physical name. However, this set up results in a different order as displayed in the next image:

Firewall Management Center Devices / Secure Firewall InlineSets	Overview Analysis	Policies De	Devices Objects	Integration	Deploy Q 🦧 🛟	admin
FTD						Save Cancel
Cisco Firepower 4110 Threat Defense						
Device Routing Interfaces Inline Se	ts DHCP VTEP					
Name	Interface Pairs					
A	Inside-A<->Outside-A					/1
B	Inside-B<->Outside-B					11
C O	Outside-C<->Inside-C					11
				D	lisplaying 1-3 of 3 rows I<	< Page 1 of 1 > > C

FTD Inline Sets

Users notice that the Inline set C has a different order from the other two inline sets.



Note: It is important to note that Inline Set Interface Pair order does not cause any communication or operational problem, however, it can be concerning for aesthetic purposes.

Explanation

https://FMC IP/api/api-explorer

Inline sets interface order is not assigned by name but by ID, which is verified via REST-API.

Step 1. To verify this, FMC REST-API explorer needs to be accessed. This is achieved by accessing the next URL syntax:



Step 2. Navigate to **Devices** and expand the menu.

Domains Global ~	
Troubleshoot	>
Network Map	>
Devices	~
GET /api/fmc_config/v1/domain/{domainUUID}/devices/devicerecords/{objectId}	
PUT /api/fmc_config/v1/domain/{domainUUID}/devices/devicerecords/{objectId}	
DELETE /api/fmc_config/v1/domain/{domainUUID}/devices/devicerecords/{objectId}	
GET /api/fmc_config/v1/domain/{domainUUID}/devices/devicerecords	
POST /api/fmc_config/v1/domain/{domainUUID}/devices/devicerecords	
GET /api/fmc_config/v1/domain/{domainUUID}/devices/devicerecords/{containerUUID}/fpphysicalinterfaces/{objectId}	
PUT /api/fmc_config/v1/domain/{domainUUID}/devices/devicerecords/{containerUUID}/fpphysicalinterfaces/{objectId}	
GET /api/fmc_config/v1/domain/{domainUUID}/devices/devicerecords/{containerUUID}/fplogicalinterfaces/{objectId}	
PUT /api/fmc_config/v1/domain/{domainUUID}/devices/devicerecords/{containerUUID}/fplogicalinterfaces/{objectId}	

Step 3. Navigate to the GET option for:

/api/fmc_config/v1/domain/{domainUUID}/devices/devicerecords/{containerUUID}/inlinesets



Inline Sets GET Option

Step 4. Click on Try it Out button.

GET /api/fmc_com	<pre>ifig/v1/domain/{domainUUID}/devices/devicerecords/{containerUUID}/inlinesets/{objectId}</pre>
PUT /api/fmc_com	nfig/v1/domain/{domainUUID}/devices/devicerecords/{containerUUID}/inlinesets/{objectId}
DELETE /api/fmc_co	nfig/v1/domain/{domainUUID}/devices/devicerecords/{containerUUID}/inlinesets/{objectId}
GET /api/fmc_com	nfig/v1/domain/{domainUUID}/devices/devicerecords/{containerUUID}/inlinesets
Retrieves, deletes, creates NGIPS device ID.	, or modifies the inline set associated with the specified NGIPS device ID and inline set ID. If no inline set ID is specified, retrieves list of all inline sets associated with the specified
Name	Description
containerUUID * required string (path)	The container id under which this specific resource is contained.
	bf03d7e0-bdef-11ee-be2a-b0be30d93c81
domainUUID * required string (path)	Domain UUID
	e276abec-e0/2-11e3-8169-6d9ed49b625f
Offset integer(\$int32) (awery)	Index of first item to return.

Inline Set GET Try it Out Button

Step 5. Replace the **containerUUID** field with the **FTD UUID** (this is displayed by the show version command on the FTD command line) and click on **Execute**.

Name	Description	
containerUUID * required	The container id under which this specific resource is contained.	
(parn)	bf03d7e0-bdef-11ee-be2a-b0be30d93c81	
domainUUID * required string (path)	Domain UUID	
	e276abec-e0f2-11e3-8169-6d9ed49b625f	
Offset integer(\$int32) (query)	Index of first item to return.	
	offset - Index of first item to return.	
limit integer(\$int32) (averv)	Number of items to return.	
	limit - Number of items to return.	
expanded boolean (query)	If set to true, the GET response displays a list of objects with additional attributes.	

Inline Sets Execution

Step 6. Scroll down to the **Response Body** and copy the ID of the interface that is required to troubleshoot, in this case it is Inline Set **C**.

"id": "005056B3-BB52-0ed3-0000-021474837838",

Server respor	.887283.58143918/391/fmc_conf4g/VJ/dom31n/ez/ksbec-e8f2-1163-8109-699684956537/devices/devicerecords/bf03d7k8-666f~11ee-6e2a-606e30693c81/inLinesets ns0 Details
Server respor Code 200	nse Details
200	Detalls
200	
	Response body
	<pre>"4d": "00505633-8852-0ed3-0000-021474837758", "*yper": "Tollnöst", "4d": "005055633-8852-0ed3-0000-021474837758", "*yper": "Tollnöst", "4d": "005055683-8852-0ed3-0000-021474837758", "*yper": "Tollnöst", "*uper": "Tollnöst", "*uper: "Tol</pre>

Inline Sets GET Response Body

Step 7. Navigate to the **GET** option for:

/api/fmc_config/v1/domain/{domainUUID}/devices/devicerecords/{containerUUID}/inlinesets/{objectId}



Inline Sets GET Object ID

Step 8. Click on Try it Out button.

GET /api/fmc_cor	<pre>area /api/fmc_config/v1/domain/{domainUUID}/devices/devicerecords/{containerUUID}/inlinesets/{objectId}</pre>									
Retrieves, deletes, creates	or modifies the inline set associated with the specified NGIPS device ID and inline set ID. If no inline set ID is specified, retrieves list of all inline sets associated with the specified									
Noir 5 device ib.										
Parameters	Try it out									
Name	Description									
objectId * required string	Unique identifier of an inline set.									
(path)	objectId - Unique identifier of an inline set.									
containerUUID * required string (path)	The container id under which this specific resource is contained.									
1 Y	containerUUID - The container id under which									
domainUUID * required string (path)	Domain UUID									
(peece)										

Inline Sets GET Object ID Try it Out

Step 9. Replace the **objectId** field with the ID taken in Step 6 and the **containerUUID** with the FTD UUID used on Step 5. After that, click on the **Execute** button.

Parameters		Cancel				
Vame	Description					
bbjectld * required tring (path)	Unique identifier of an inline set.					
	005056B3-BB52-0ed3-0000-021474837838					
container/UUID • required string The container id under which this specific resource is contained.						
	bf03d7e0-bdef-11ee-be2a-b0be30d93c81					
domainUUID * required	Domain UUID					
	e276abec-e0f2-11e3-8169-6d9ed49b625f					
	Execute					
Responses						
Code Description		Links				

Inline Sets GET Object ID Execution

Step 10. Validate the **Response body** of the REST-API query.

Request U	JRL
https://	/10.88.243.58:43010/api/fmc_config/v1/domain/e276abec-e0f2-11e3-8169-6d9ed49b625f/devices/devicerecords/bf03d7e0-bdef-11ee-be2a-b0be30d93c81/inlinesets/00505683-8852-0ed3-00000-021474837838
Server res	sponse
Code	Details
200	Response body
	<pre> *********************************</pre>

Inline Sets GET Object ID Response Body

Interface Ethernet1/6 is added as the first component of the inline set, while Ethernet1/5 is added as the second component. This happens due to the assigned interface ID for Ethernet1/6 is alphabetically lower that Ethernet1/5. This validates the logic that the FMC is taking for interface assignment on inline sets.

Workaround

The interface ID is assigned by FXOS at the moment of the logical device creation, so the interfaces needs to be removed at FXOS level and read in the desired order for the ID to be assigned again.



Warning: The next workaround is applicable only for FPR4100 and FPR9300 series, any other Secure Firewall hardware needs to be reimaged. Also, this workaround is disrupts traffic, in this sense, FMC, FTD and FXOS backups are strongly recommended as well as a planned maintenance window.

Step 1. Log into the FMC and delete the problematic inline set on the next path:

Devices > Device Management > Edit the desired FTD > Inline Sets.

Firewall Management Cer Devices / Secure Firewall InlineSets	nter _{Overview Ans}	lysis Policies	Devices	Objects	Integration	Deploy Q 🦧 🌣	admin
FTD							Save
Device Routing Interfaces	Inline Sets DHCP VTEP						
							Add Inline Set
Name	Interface Pairs						
A	Inside-A<->Outside-A						/1
В	Inside-B<->Outside-B						/1
c	Outside-C<->Inside-C						/1
						Displaying 1-3 of 3 rows	$\langle Page 1 of 1 \rangle \rightarrow C$

Inline Set Deletion

Step 2. Save changes and deploy.

Firewall Management Center Devices / Secure Firewall InlineSets	Overview Analysis	Policies Device	s Objects	Integration	Deploy Q 🧟 🔅 🕜 admin 🕶 🖓
FTD					You have unsaved change: Save Cancel
Device Routing Interfaces Inline Sets	B DHCP VTEP				
Name	terface Pairs				
A Ins	side-A<->Outside-A				/ 🕯
B	iside-B<->Outside-B				/1
					Displaying 1-2 of 2 rows I < Page 1 of 1 > > C

Inline Set Deletion Deployment

Step 3. Log into the device FCM and navigate to **Logical Devices** and edit the desired **Logical Device**.

Overview	Interfaces	Logical Devices	Security Engine	Platform Settin	ngs					System Tools Help admin
Logical Devic	:e List			(1 Native i	nstance) 0% (0 of 22) Cores	Available				C Refresh 🕢 Add 🔹
FTD-1			Standalone	Status:ok						
Applicat	tion	Version	Resource P	rofile	Management IP	Gateway	Manage	ement Port	Status	
FTD FTD		7.2.5.1.29			10.88.171.89	10.88,171.1	Etherne	t1/8	Online	🕶 🕅 🖙
	Interface Name				Туре		Attributes			
	Ethernet1/1				data		Cluster Operational Statu	s : not-applicable		
	Ethernet1/2				data		FIREPOWER-MGMT-IP	: 10.88.171.89		
	Ethernet1/3				data		HA-ROLE	: standalone		
	Ethernet1/4				data		UUID	: bf03d7e0-bdef-1	1ee-be2a-b0be30d93c81	
	Ethernet1/5				data					
	Ethernet1/6				data					



Step 4. Remove both interfaces belonging to the problematic inline set, which are Ethernet1/5 and Ethernet1/6 for this example, and save changes.

Overview Interfaces Logical Devices Security Engine Platform Settings				System Tools	Help admin
Editing - FTD-1 Standalone Cisco Secure Firewall Threat Defense 7.2.5.1.29				Save	Cancel
Data Ports					
Ethernet1/1					
Ethernet1/2					
Ethernet1/3					
Ethernet1/4					
Ethernet1/5 Ethernet1/6		-			
Ethernet1/6 Ethernet1/4		_			
Ethernet1/7					
		FTD - 7.2.5.208			
Ethernet1/2		Ethernet1/8 Click to configure			
Ethernet1/3		_			
Decorators					
Application Version Resource Profile Management IP	Gateway	Management Port	Status		
FTD 7.2.5.1.29 10.88.171.89	10.88.171.1	Ethernet1/8	online		
Interface Name Type					
Ethernet1/1 data					
Ethernet1/2 data					
Ethernet1/3 data					

Inline Set Interface Removal

Step 5. On FMC navigate to **Devices > Device Management**, edit the desired **FTD** and navigate to the **Interfaces** tab, click on **Sync Device** button, save changes and deploy.

Firewall Management Cer Devices / Secure Firewall Interfaces	nter _{Overvie}	w Analysi	is Policies	Devices	Objects	Integration		Deploy	۹ 🧟	🌣 🕜 adm	in ▼ thether SECUI	
FTD Cisco Firepower 4110 Threat Defense Device Routing Interfaces	Inline Sets DHC	P VTEP									Save Cance	el
Interface configuration has changed on de	evice. Click to know r						୍ C Search by name			Sync Device	Add Interfaces	•
Interface	Logical Name	Туре	Security Zones	MAC Ad	Idress (Active/S	itandby)	IP Address		Path Monitor	ing Virtual R	outer	
le Ethernet1/1	Inside-A	Physical						1	Disabled		1	
Ethernet1/2	Outside-A	Physical						I	Disabled		/	
Ethernet1/3	Inside-B	Physical						I	Disabled		1	
Ethernet1/4	Outside-B	Physical						I	Disabled		/	
😑 🕼 Ethernet1/5	Inside-C	Physical						I	Disabled	Global		
😑 🕼 Ethernet1/6	Outside-C	Physical						I	Disabled	Global		
Ethernet1/8	diagnostic	Physical						I	Disabled	Global	1	
						Displaying	-7 of 7 interferen 1/ / D	1				
						Usplaying	1-7 or 7 internaces I/ / P	age 1				

Inline Set FTD Sync After Removal

Step 6. Edit the logical device again, add the first interface (Ethernet1/5) again, and save the changes.

Overview Interfaces Logical Devices Security Engine Platform S	ettings				System Tools	Help admin
Editing - FTD-1 Standalone Cisco Secure Firewall Threat Defense 7.2.5.1.29					Save	Cancel
Data Ports						
Ethernet1/1						
Ethernet1/2						
Ethernet1/3						
Ethernet1/4						
Ethernet1/5	Ethernet1/4		_			
Ethernet1/6						
Ethernet1/7	Ethernet1/2					
			FTD - 7.2.5.208			
	Ethernet1/3		Ethernet1/8 Click to configure			
Decorators	Ethernet1/1		_			
Application Version Resource Profile	Management IP	Gateway	Management Port	Status		
FTD 7.2.5.1.29	10.88.171.89	10.88.171.1	Ethernet1/8	online		
Interface Name	Туре					
Ethernet1/1	data					
Ethernet1/2	data					
Ethernet1/3	data					



Step 7. Click on Sync Device button, save changes, and deploy again.

Firewall Management Co Devices / Secure Firewall Interface	enter _{Overvie}	w Analys	is Policies	Devices	Objects	Integration		Deploy Q	🤌 🌣	🕜 admin -	cisco SECURE
FTD Cisco Firepower 4110 Threat Defense Device Routing Interfaces	Inline Sets DHC	P VTEP								kd change	Save Cancel
Interface configuration has changed on	device. Click to know r						Q Search by name		Sync	Device	Add Interfaces 🔻
Interface	Logical Name	Туре	Security Zones	MAC A	dress (Active/S	tandby)	IP Address	Path	Monitoring	Virtual Route	r
12 Ethernet1/1	Inside-A	Physical						Disab	led		1
to Ethernet1/2	Outside-A	Physical						Disab	led		/
SEthernet1/3	Inside-B	Physical						Disab	led		/
thernet1/4	Outside-B	Physical						Disab	led		/
S Ethernet1/5	Inside-C	Physical						Disab	led	Global	/
😑 🤹 Ethernet1/6	Outside-C	Physical						Disab	led	Global	
Ethernet1/8	diagnostic	Physical						Disab	led	Global	/
						Displaying 1	-7 of 7 interfaces IC C Pa	ige 1			of 1 > >L C

FTD Sync After First Interface Adding

Step 8. Edit the logical device again, add the first interface (Ethernet1/6) once more, and save the changes.

Overview Interfaces Logical Devices Security Engine Platform	n Settings				System Tools	Help admin
Editing - FTD-1 Standalone Cisco Secure Firewall Threat Defense 7.2.5.1.29					Save	Cancel
Data Ports						
Ethernet1/1						
Ethernet1/2						
Ethernet1/3						
Ethernet1/4						
Ethernet1/5	Ethernet1/4		-			
Ethernet1/6 Ethernet1/7	Ethernet1/5					
	Ethernet1/2		FTD - 7.2.5.208			
	Ethernet1/3		Click to configure			
Decorators	Ethernet1/1		_			
Application Version Resource Profile	Management IP	Gateway	Management Port	Status		
G FTD 7.2.5.1.29	10.88.171.89	10.88.171.1	Ethemet1/8	online		
Interface Name	Туре					
Ethernet1/1	data					
Ethernet1/2	data					
Ethernet1/3	data					



Step 9. Repeat Step 5 by clicking on Sync Device button, saving changes, and then deploying.

Firewall Management Center Devices / Secure Firewall Interfaces	Overview Analy	vsis Policies	Devices	Objects	Integration		Deploy Q 🦧 🏠	🍘 admin ▾ 🏻 🖞	sco SECURE
FTD Cisco Firepower 4110 Threat Defense Device Routing Interfaces Inline Sets	: DHCP VTEP							ed changes Save	Cancel
Interface configuration has changed on device. Click	to know more.					Q Search by name	Syn	c Device Add	Interfaces 🔻
Interface Logical Na	me Type	Security Zones	MAC Ad	Idress (Active/Sta	andby) IP	Address	Path Monitoring	Virtual Router	
Ethernet1/1 Inside-A	Physical						Disabled		1
Ethernet1/2 Outside-A	Physical						Disabled		1
linside-B	Physical						Disabled		1
la Ethernet1/4 Outside-B	Physical						Disabled		1
lnside-C	Physical						Disabled	Global	1
Ethernet1/6	Physical						Disabled		
Ethernet1/8 diagnostic	Physical						Disabled	Global	1
					Displaying 1-7	of 7 interfaces I < Pa	ge 1	of 1	>> c

FTD Sync After Second Interface Adding

Step 10. Configure the interfaces with the same parameters as before and add the inline set again.

Firewall Management Center Devices / Secure Firewall InlineSets	Overview Ana	lysis Policies	Devices	Objects	Integration	Depl	oy Q 🦧 🛱	🕜 admin 🕶	cisco SECURE
FTD								ved changes S	ave Cancel
Cisco Firepower 4110 Threat Defense Device Routing Interfaces Inline S	Sets DHCP VTEF								
Name	Interface Pairs								
A	Inside-A<->Outside-A								/1
в	Inside-B<->Outside-B								11
c	Inside-C<->Outside-C								/1
						Displayin	ng 1-3 of 3 rows 🕸	C C Page 1	of1 > ≻ C

Inline Set Configuring

This time, inline sets interface order is displayed in the expected way. Save changes and deploy one final time.



Note: Case Example section of this document is to be executed one more time to validate that interfaces IDs are now in the correct order.

Related Information

• Cisco Technical Support & Downloads