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[å ç ... è | ◊ æ ç ◊ ä » ¶](#)

[é œ € æ ±,](#)

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[FXS/FX Fundamentals](#)

[å ÿ å ÿ ° ç ¢ ž ç ÿ ¥ è ~](#)

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- ISR4451-X/K9
- NIM-2FXSP
- NIM-2FXO
- Cisco IOS® XE ç ° ° ^ æ œ - 16.8.2

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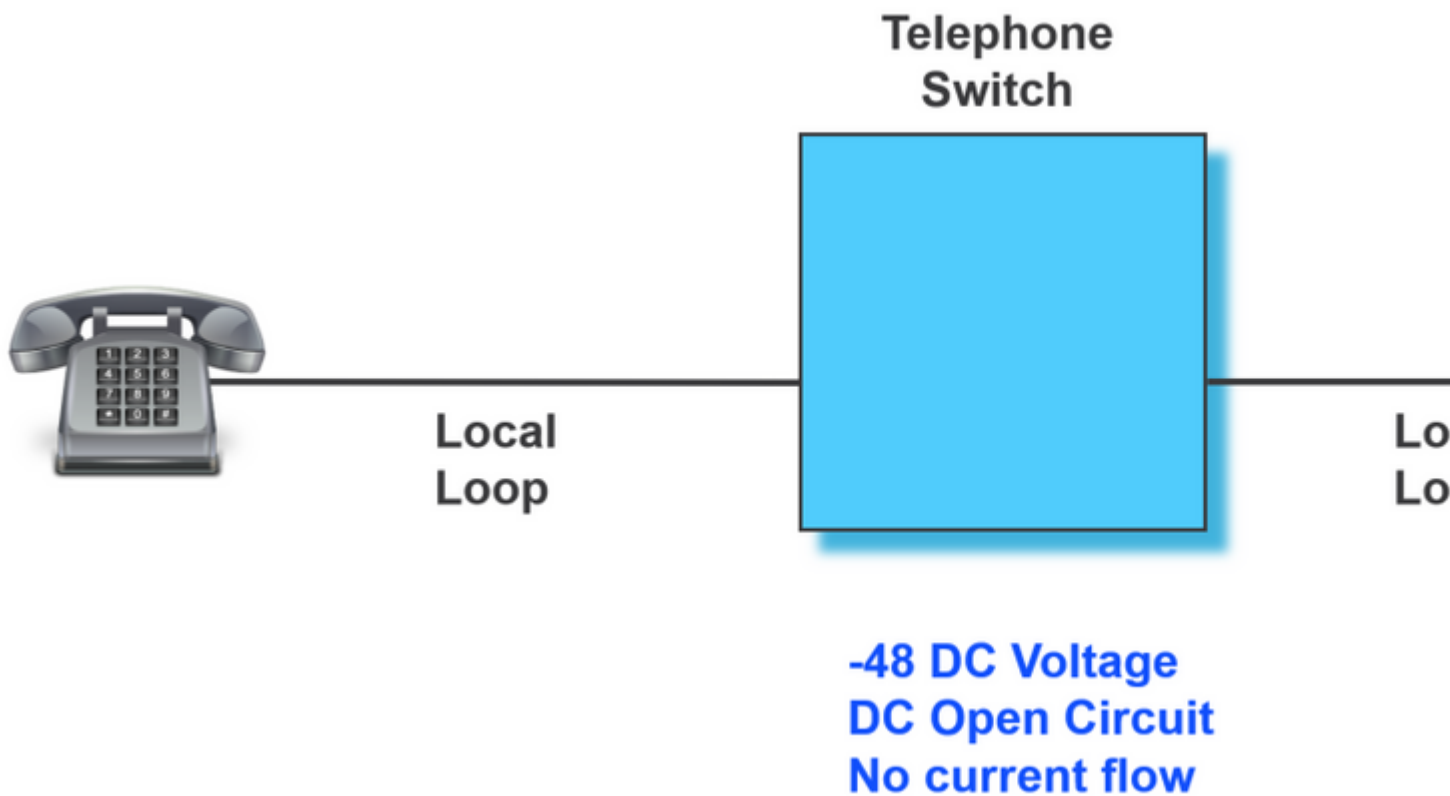
# FXS/FXO

## FXS/FXO

FXS (Foreign Exchange Station) / FXO (Foreign Exchange Office) interface. The diagram shows a telephone connected to a Telephone Switch via a Local Loop. The Telephone Switch is connected to another Local Loop. The interface is designed to handle -48 DC Voltage, DC Open Circuit, and No current flow.

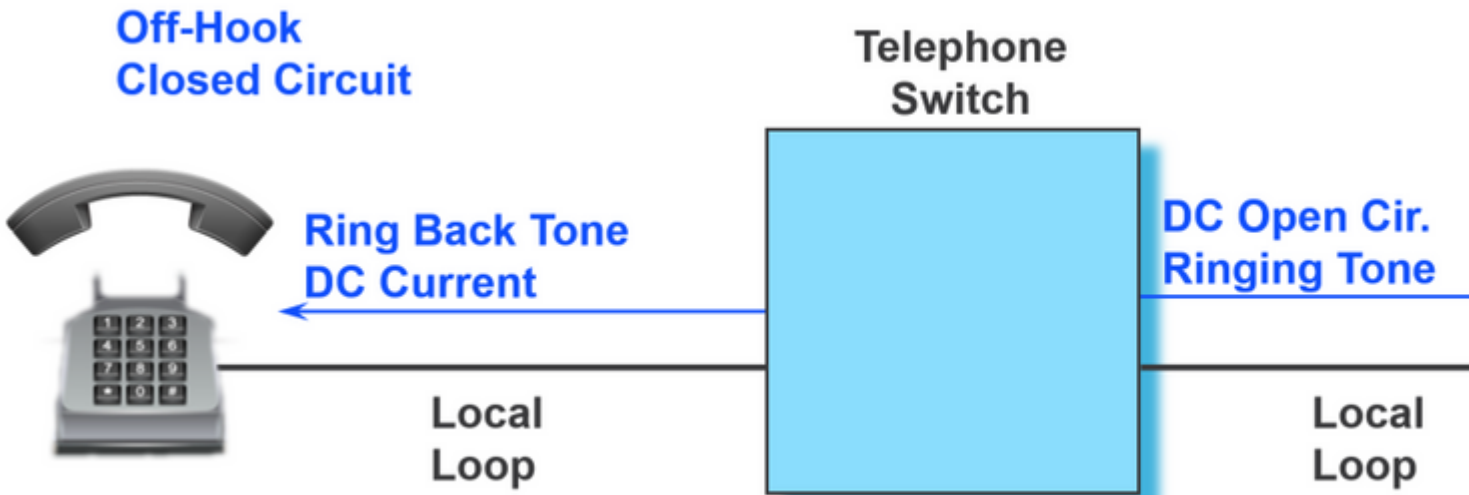
## FXS/FXO

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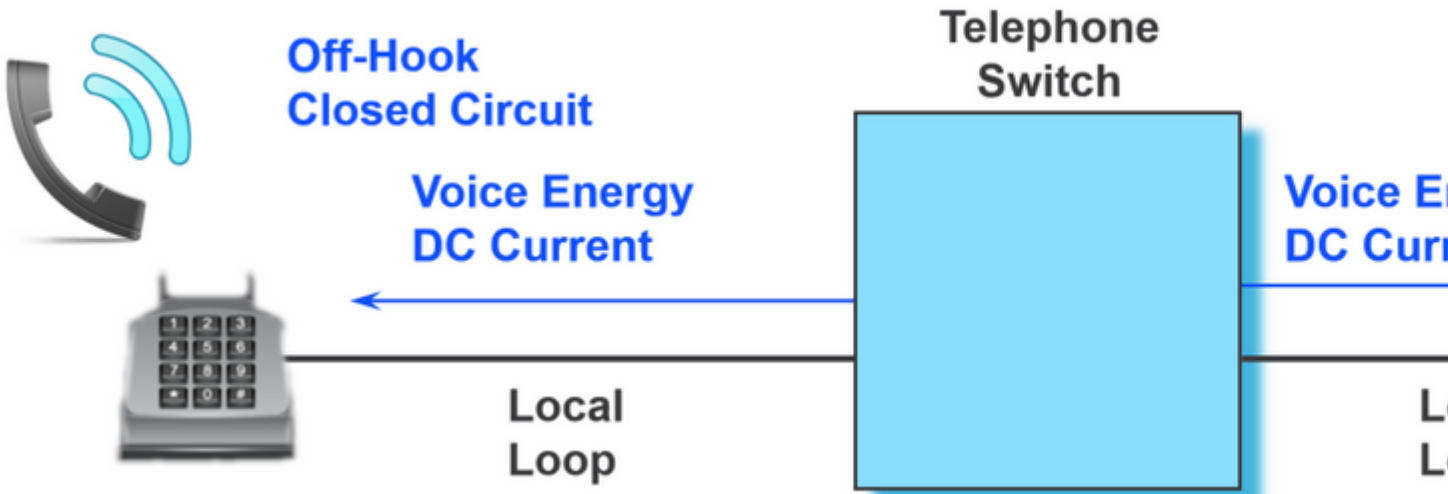


FXS (Foreign Exchange Station) / FXO (Foreign Exchange Office) interface. The diagram shows a telephone connected to a Telephone Switch via a Local Loop. The Telephone Switch is connected to another Local Loop. The interface is designed to handle -48 DC Voltage, DC Open Circuit, and No current flow.





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<#root>

007578: Jul 2 09:15:50.655: %SYS-7-USERLOG\_DEBUG: Message from tty867(user id: ): GOING OFF HOOK

007579: Jul 2 09:15:51.903: http\_dsp\_message: SEND\_SIG\_STATUS: state=0xC timestamp=62909 systime=6970515  
007580: Jul 2 09:15:51.903: http\_process\_event: [0/3/0, FXSLS\_ONHOOK, E\_DSP\_SIG\_1100]fxspls\_onhook\_offhook  
007581: Jul 2 09:15:51.903: [0/3/0] get\_local\_station\_id calling num= calling name= calling time=07/02 0  
007582: Jul 2 09:15:51.904: http\_process\_event: [0/3/0, FXSLS\_WAIT\_SETUP\_ACK, E\_HTSP\_SETUP\_ACK]fxspls\_che

007583: Jul 2 09:16:00.879: %SYS-7-USERLOG\_DEBUG: Message from tty867(user id: ): DIALING 2002

007584: Jul 2 09:16:02.261: http\_digit\_ready(0/3/0): digit = 2  
007585: Jul 2 09:16:02.734: http\_digit\_ready(0/3/0): digit = 0  
007586: Jul 2 09:16:03.005: http\_digit\_ready(0/3/0): digit = 0  
007587: Jul 2 09:16:03.438: http\_digit\_ready(0/3/0): digit = 2  
007588: Jul 2 09:16:03.439: http\_process\_event: [0/3/0, FXSLS\_OFFHOOK, E\_HTSP\_PROCEEDING]http\_alert\_noti

007589: Jul 2 09:16:08.241: %SYS-7-USERLOG\_DEBUG: Message from tty867(user id: ): RING BACK

007590: Jul 2 09:16:10.621: http\_call\_bridged invoked  
007591: Jul 2 09:16:10.665: http\_process\_event: [0/3/0, FXSLS\_OFFHOOK, E\_HTSP\_CONNECT]fxspls\_offhook\_conr  
007592: Jul 2 09:16:10.665: [0/3/0] nim\_set\_sig\_state: ABCD=6, timestamp=0, sys\_time=6972391  
007593: Jul 2 09:16:10.665: [0/3/0] set signal state = 0x6 timestamp = 0  
007594: Jul 2 09:16:10.667: http\_process\_event: [0/3/0, FXSLS\_CONNECT, E\_HTSP\_VOICE\_CUT\_THROUGH]fxspls\_vo

007595: Jul 2 09:16:20.815: %SYS-7-USERLOG\_DEBUG: Message from tty867(user id: ): TWO WAY AUDIO

007596: Jul 2 09:16:37.503: %SYS-7-USERLOG\_DEBUG: Message from tty867(user id: ): HANGING UP

007597: Jul 2 09:16:39.794: http\_dsp\_message: SEND\_SIG\_STATUS: state=0x4 timestamp=45260 systime=6975304  
007598: Jul 2 09:16:39.794: http\_process\_event: [0/3/0, FXSLS\_CONNECT, E\_DSP\_SIG\_0100]fxspls\_offhook\_onh  
007599: Jul 2 09:16:39.794: http\_timer - 1000 msec  
007600: Jul 2 09:16:40.795: http\_process\_event: [0/3/0, FXSLS\_CONNECT, E\_HTSP\_EVENT\_TIMER]fxspls\_connect  
007601: Jul 2 09:16:40.795: http\_timer\_stop  
007602: Jul 2 09:16:40.796: http\_timer\_stop3  
007603: Jul 2 09:16:40.878: http\_process\_event: [0/3/0, FXSLS\_WAIT\_RELEASE\_REQ, E\_HTSP\_RELEASE\_REQ]fxspls  
007604: Jul 2 09:16:40.878: [0/3/0] nim\_set\_sig\_state: ABCD=4, timestamp=0, sys\_time=6975412  
007605: Jul 2 09:16:40.878: [0/3/0] set signal state = 0x4 timestamp = 0  
007606: Jul 2 09:16:40.878: [0/3/0] nim\_set\_sig\_state: ABCD=4, timestamp=0, sys\_time=6975412  
007607: Jul 2 09:16:40.878: [0/3/0] set signal state = 0x4 timestamp = 0  
007608: Jul 2 09:16:40.898: http\_dsp\_message: RESP\_SIG\_STATUS: state=0x4 timestamp=0 systime=6975414  
007609: Jul 2 09:16:40.898: http\_process\_event: [0/3/0, FXSLS\_ONHOOK, E\_DSP\_SIG\_0100]fxspls\_onhook\_onhook

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<#root>

008109: Jul 2 10:54:34.424: %SYS-7-USERLOG\_DEBUG: Message from tty867(user id: ): PHONE IS IN IDLE & ON

008110: Jul 2 10:54:42.225: http\_timer\_stop3 http\_setup\_req  
008111: Jul 2 10:54:42.225: Orig called num:88777  
008112: Jul 2 10:54:42.225: http\_process\_event: [0/3/0, FXSLS\_ONHOOK, E\_HTSP\_SETUP\_REQ]fxspls\_onhook\_setu  
008113: Jul 2 10:54:42.225: [0/3/0] nim\_set\_sig\_state: ABCD=0, timestamp=0, sys\_time=7563547  
008114: Jul 2 10:54:42.225: [0/3/0] set signal state = 0x0 timestamp = 0



ISR4451#show voice port sum

PORT	CH	SIG-TYPE	ADMIN	OPER	IN STATUS	OUT STATUS	EC
0/3/0	--	fxs-ls	up	dorm	on-hook	idle	y
0/3/1	--	fxs-ls	up	dorm	on-hook	idle	y

ISR4451#show voice call sum

PORT	CODEC	VAD	VTSP	STATE	VPM STATE
0/3/0	-	-	-		FXSLS_ONHOOK
0/3/1	-	-	-		FXSLS_ONHOOK

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ISR4451#show voice port sum

PORT	CH	SIG-TYPE	ADMIN	OPER	IN STATUS	OUT STATUS	EC
0/3/0	--	fxs-ls	up	up	on-hook	ringing	y
0/3/1	--	fxs-ls	up	dorm	on-hook	idle	y

ISR4451#show voice call sum

PORT	CODEC	VAD	VTSP	STATE	VPM STATE
0/3/0	g711ulaw	n	S_SETUP_REQ_PROC		FXSLS_WAIT_OFFHOOK
0/3/1	-	-	-		FXSLS_ONHOOK

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ISR4451#show voice port sum

PORT	CH	SIG-TYPE	ADMIN	OPER	IN STATUS	OUT STATUS	EC
0/3/0	--	fxs-ls	up	up	off-hook	idle	y
0/3/1	--	fxs-ls	up	dorm	on-hook	idle	y

ISR4451#show voice call sum

PORT	CODEC	VAD	VTSP	STATE	VPM STATE
0/3/0	g711ulaw	n	S_CONNECT		FXSLS_CONNECT
0/3/1	-	-	-		FXSLS_ONHOOK

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- show call active voice brief
- show voice call status
- **show voice dsp active**
- show voice dsp error
- show voice dsp group all

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äl¼ç'™™test voice port

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<b>Router# test voice port slot/subunit/port detector {m-lead   battery-reversal   loop-current   æŒ-é'   tip-ground   ring-ground   ring-trip} {on   é—œé-%õ}</b>	æ™™è~è!æ, -è©! çš,, èªžéŸ³ãŸ ã€, ç, °è!æ, -è©! çš,, æªçæ, -ã™" è¼,ã...Ÿé—œéæ¼—i¼Œæä,   æŒ‡ã®šæ~ã   ä¼ã^Œã... æ³ªæ,, i¼šã°æ-¼æ-ã€ã¼jã»ãžã^Ÿ(E&Mã€FXOã€FXS)i¼Œæãf...éj-çªé©ç'
<b>Router# test voice port slot/subunit/port detector {m-lead   battery-reversal   loop-current   æŒ-é'   tip-ground   ring-ground   ring-trip}ç!ç™™</b>	æ™™è~è!çµæŸæŸæ, -è©! çš,, èªžéŸ³ãŸ ã€, ç, °è!æ, -è©! çš,, æªçæ, -ã™" è¼,ã...Ÿé—œéæ¼—i¼Œæè²é—œéæ¼—ç!ç™™ ä»¥çµ æ³ªæ,, i¼šã°æ-¼æ-ã€ã¼jã»ãžã^Ÿ(E&Mã€FXOã€FXS)i¼Œæãf...éj-çªé©ç'

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<b>Router# test voice port slot/subunit/port loopback {local</b>	æ™™è~è!æ, -è©! çš,, èªžéŸ³ãŸ i¼Œæä,   ç, ç'ªžæ-¹ãè¼,ã...Ÿé—œéæ¼—ã€, æ³ªæ,, i¼šã¼...é^ãœ" æ, -è©! èªžéŸ³ãŸ ä,šã»õç«ã¼ãæ,



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Router# test voice port slot/subunit/port loopback disable	æ™è~è æœ ¨ ä...¶ä,šçµææÿæ,-è©   çš,,èªžéÿ³äÿ i¼CEä,   è¼,ä...¥é—œéµä—disab

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Router# test voice port slot/subunit/port injection-tone {local  ç¶²è·-} {1000hz   2000hz   200hz   3000hz   300hz   3200hz   3400hz   500hz   quiet}	æ™è~è æœ,-è©   çš,,èªžéÿ³äÿ i¼CEä,   ç, °ä,³é€æœ,-è©   éÿ³çš,,æ-¹ä'ä'CEæ,-è©   éÿ³çš æ³·æ,, i¼šäž...é ^æœ ¨ æœ,-è©   èªžéÿ³äÿ ä,šä»°ç«ä'¼ä«ã€,
Router# test voice port slot/subunit/port injection-tone disable	æ™è~è æœœ ¨ ä...¶ä,šçµææÿæ,-è©   çš,,èªžéÿ³äÿ i¼CEä,   è¼,ä...¥é—œéµä—disab æ³·æ,, i¼šä»°æœ%œ ¨ ä·ÿç" æœ,-è©   æçä»¶æ™, i¼CEisableé—œéµä—æ%œ ¨ ä

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æCE‡ä»	
Router# test voice port slot/subunit/port relay {e-lead  ä³¼ç'°   ring- ground	æ™è~è æœ,-è©   çš,,èªžéÿ³äÿ ä€, ç, °æfæœ ¨ æœ,-è© çš,,ä,ç¹¼è¼,ä...¥é—œéµä—i¼CEä,   æCE‡ä»šæ~ä   ä¼,ä^¶ä...¶é€²ä... æ³·æ,, i¼šä»°æ-¼æ-ä€äžjä»¼ž<ä^¥(E&Mä€FXOä€FXS)i¼CEáf...é;çªé©ç'

<b>battery-reversal</b>  æ-é»  æE-é^   <b>tip-ground</b> {on off}	
Router# test <b>voice port</b> <b>slot/subunit/port</b> <b>relay {e-lead</b>  â³⁴ç'°   <b>ring-</b> <b>ground  </b> <b>battery-reversal</b>  æ-é»  æE-é^   <b>tip-</b> <b>ground}ç!ç'''</b>	æ™è~è  çµ æÿæ,-è©   çš,,èªžéÿ³âÿ ã€, ç,°æ£âœ·æ,-è© çš,,ä,ç¹¹⁄⁴è¹⁄⁴,â...¥é—œé µâ—i¹⁄⁴CEç,,¶â³⁴CEè¹⁄⁴,â...¥é—œé µâ—disableä æ³·æ,,i¹⁄⁴šâ° æ-¹⁄⁴æ- æ<ä¿jâ»âž<â^¥(E&Mã€FXOã€FXS)i¹⁄⁴CEâf...éj-çª°é©ç'''

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â...¶ test voice port switch

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voice call æ^— show voice call

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Router# test voice port <b>slot/subunit/port switch</b> <b>fax</b>	æ™è~è  æ,-è©   çš,,èªžéÿ³âÿ ã€, è¹⁄⁴,â...¥é—œé µâ—faxi¹⁄⁴CEâ¹⁄⁴·â¶èªžéÿ³âÿ é€²â...¥â,³çœÿæ;â¹⁄⁴ ã€,
Router# test voice port <b>slot/subunit/port switch</b> <b>disable</b>	æ™è~è  çµ æÿæÿæ,-è©   çš,,èªžéÿ³âÿ ã€, è¹⁄⁴,â...¥é—œé µâ— <b>disable</b> âªèªžéÿ³é€ç·šâÿ é,,ãžÿç,èªžéÿ³æ;â¹⁄⁴ ã€,

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005754: Nov 18 18:51:28.257: htsp\_process\_event: [0/2/3, FXOLS\_ONHOOK, E\_HTSP\_SETUP\_REQ]fxols\_onhook\_set  
005755: Nov 18 18:51:28.257: [0/2/3] set signal state = 0xC timestamp = 0  
005756: Nov 18 18:51:28.257: htsp\_timer - 500 msec  
005782: Nov 18 18:51:28.509: htsp\_process\_event: [0/2/3, FXOLS\_WAIT\_DIAL\_TONE, E\_DSP\_SIG\_1100]fxols\_pow  
005783: Nov 18 18:51:28.509: htsp\_timer2 - 1000 msec  
005784: Nov 18 18:51:28.509: htsp\_timer\_stop  
005785: Nov 18 18:51:29.509: htsp\_process\_event: [0/2/3, FXOLS\_WAIT\_DIAL\_TONE, E\_HTSP\_EVENT\_TIMER2]fxols  
005786: Nov 18 18:51:29.509: htsp\_timer\_stop  
005787: Nov 18 18:51:29.509: htsp\_timer\_stop2

å...¶ fxols\_power\_denial\_detected ç•¶ç·šè¬ä,šæœªæªçæ,¬â°ç'è¬é»æªæ™,i¼CEâ°èèš,ç™¼ä°ä»¶ã€é è²æf...æ³  
power-denial <0-

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## 關於此翻譯

思科已使用電腦和人工技術翻譯本文件，讓全世界的使用者能夠以自己的語言理解支援內容。請注意，即使是最佳機器翻譯，也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準確度概不負責，並建議一律查看原始英文文件（提供連結）。