建立和維護ONS 15454保護組(CTC軟體3.1版及 更低版本)

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<u>簡介</u>

本文說明如何建立、刪除和維護思科ONS 15454上可用的各種型別的保護組。本文檔包括DS1、 DS3、DS3E、DS3XM、EC1和OCn卡以及思科傳輸控制器(CTC)軟體版本(3.1或更高版本)。

<u>開始之前</u>

<u>慣例</u>

如需文件慣例的詳細資訊,請參閱思科技術提示慣例。

<u>必要條件</u>

本文件沒有特定先決條件。

<u>採用元件</u>

本檔案中的資訊是根據以下軟體和硬體版本。

- Cisco ONS 15454
- •思科傳輸控制器3.1版及更低版本

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除(預設))的組態來啟動。如果您在即時網路中工作,請確保在使用任何命令之前瞭解其潛在影響。

保護組型別

Cisco ONS 15454提供四種保護方案,具體取決於卡型別:

<u>0:1</u>

此保護方案也稱為「未保護」。 以下任何 15454 <u>Cisco ONS 15454</u> 在插槽1-6或插槽12-17中可 能以未受保護的狀態運行。這是保護組的預設配置。

<u>1:1</u>

此保護方案也稱為「一對一保護」。 在此配置中,一個工作卡與一個保護卡配對。此保護方案適用 於所有電子卡:DS1、DS3、DS3E、DS3XM和EC1。工作卡必須位於偶數插槽中,保護卡必須位 於相鄰的奇數插槽中。例如,如果工作正常的DS3卡位於插槽4中,您可以將保護DS3卡放在插槽 3或插槽5中。

<u>1:N</u>

此保護方案也稱為「一對一保護」。在此配置中,一到五個工作卡分配給一個保護卡。可以保護的 工作卡的最大數量為5個。此保護方案可用於DS1、DS3和DS3E卡。每個1:N保護組必須包含一個 必須安裝在插槽3或15中的保護卡(DS1N-14、DS3N-12或DS3N-12E)。必須在與保護卡一半的 同一機箱上安裝相應的工作卡。例如,如果DS3N卡安裝在插槽3中,則可以在插槽1、2、4、5和 6中放置相應的工作DS3卡。如果DS3N卡安裝在插槽15中,則可以在插槽12、13、14、16和17中 放置相應的工作卡。可以保護的工作卡的確切數量取決於卡和背板型別。

<u>1+1</u>

此保護方案也稱為「一加一保護」。 在此配置中,一個工作光纖埠受不同卡上的另一個光纖埠保護 。此保護方案可用於所有OCn埠。請注意,此保護方案適用於埠,而非卡。使用兩個4埠OC3卡的 示例最好地說明了建立光纖保護組的幾個規則。

- 工作和保護埠無需位於相鄰插槽中即可形成保護組。如果一個OC3卡位於插槽2中,而另一個 OC3卡位於插槽13中,則這些卡上的埠可能是保護組的成員。
- 沒有指定的工作和保護插槽。在本例中,插槽2埠1可能是工作埠,插槽13埠1可能是保護埠。
 或者,插槽13的埠1可以是工作埠,插槽2的埠1可以是保護埠。
- •只有不同卡上的相應插槽可以是保護組的成員。如果插槽2上的埠1是工作埠,則只有插槽13上的埠1可用作保護埠。埠2、3和4不能用作保護埠。同樣,如果插槽2上的埠1是工作埠,則插槽2上的埠2、3和4不能用作保護埠。
- 一旦卡上的埠被指定為工作或受保護,同一卡上的其餘埠必須被指定為相同或不受保護。假設

埠1、插槽2是工作埠,並且埠1、插槽13是保護組中的保護埠。插槽1上的埠2可以是另一個保 護組的工作埠,也可以保持未保護狀態;它不能用作另一保護組中的保護埠。同樣,插槽13上 的埠2可以充當另一保護組中的保護埠或保持未保護狀態;它不能作為另一個保護組的工作埠。

建立保護組

預設情況下,所有卡和埠均不受保護;必須設定保護組。下面是建立保護組的兩個示例:

- 1+1
- 1:N

註:1:1保護組只是1:N保護組的一個特殊情況。

ONG 15454:1+1保護組設定

以下示例說明如何使用兩個OC12卡設定1+1保護組。此示例適用於 15454-Cisco ONS 15454。

1. <u>在「擴展架級」檢視中,按一下Provisioning</u>頁籤,然後按一下Protection頁籤。



- 2. 選擇按一下建立以開啟「建立保護組」視窗。
- 3. 在「名稱」欄位中,輸入此保護組的名稱。在本示例中,名稱為OC12-1。
- 4. 在「Type」欄位中,從下拉選單中選擇1+1(port)。
- 5. 在「Protect Port」欄位中,從下拉選單中選擇一個OCn插槽和埠。在本示例中,選擇插槽 14(OC 12)埠1作為保護埠。
- 6. 在「Available Ports」欄位中,選擇適當的卡和連線埠並突出顯示。將此插槽或埠拖動到「工作埠」視窗中。在本示例中,選擇插槽4(OC 12),埠1作為工作埠。

- 7. Bidirectional Switching覈取方塊允許您選擇單向或雙向交換。選中此框將提供雙向交換,這意 味著在發生故障時,傳送埠和接收埠都會出現將一切換到保護埠。
- 8. Revertive覈取方塊允許您選擇恢復或非恢復交換。在反向交換中,流量會在原始故障得到糾正或軟體交換器清除後切換回工作卡。您可以設定糾正故障和切換回工作設施的流量之間的時間(以分鐘為單位)。(恢復時間僅適用於自治交換機(如物理故障),不適用於軟體或使用者啟動的交換機。清除軟體交換機將使流量立即切換回工作設施。)預設恢復時間為5分鐘。在不可逆交換中,在糾正原始故障或清除軟體開關後,流量不會切換回工作卡。流量可以在指定的保護卡或埠上無限期運行,而不會丟失交換功能或功能。選擇不可恢復時, Reversion



9. 按一下OK <u>將 完</u>成調配並<u>創</u>建保護組。



ONG 15454 1:N保護組設定

以下示例適用於在1:N保護組中設定DS3、DS3E或DS1卡。工作卡的數量取決於正在構建保護組的 機箱側面的背板型別。

底板型別	DS3、DS3E符合條件的工 作插槽	DS1符合條件的工作插槽
S M - 8 4	1:5最大1、2、4、5、 6(3是保護插槽)12、 13、14、16、17(15是保 護插槽)	1:5最大1、2、4、5、 6(3是保護插槽)12、 13、14、16、17(15是保 護插槽)
B N - 2 4	1:2最大2,4(3是保護插槽)14,16(15是保護插槽)	不可用
B N C -	1:4最大1、2、4、5(3是 保護插槽)13、14、16、 17(15是保護插槽)	不可用

4	
8	

此示例使用DS3和DS3E卡的組合。為了充分利用附加DS3E功能,保護卡必須是DS3N-12E。

1. 在「擴展架級」檢視中,按一下Provisioning頁籤,然後按一下Protection頁籤。



- 2. 選擇 按一下建立以開啟「建立保護組」視窗。
- 3. 在「名稱」欄位中,輸入此保護組的名稱。在本示例中,名稱為DS3 1:N Test。
- 4. 在「Type」欄位中,從下拉選單中選擇1:N(卡)。
- 5. 在**Protect Card**欄位中,從下拉選單中選擇包含DS3N卡的插槽(插槽3或插槽15)。在本示例 中,選擇插槽3(DS3N)作為保護實體。
- 6. 在Available Cards欄位中,將顯示該機箱半部的所有DS3卡,無論背板是否支援到所有卡的連線。選擇並突出顯示一個或多個DS3卡。使用雙箭頭將其移動到工作卡視窗。在本示例中,所有四個符合條件的DS3卡均被選為工作卡。
- 7. Bidirectional Switching覈取方塊呈灰色顯示且不可用。DSn卡在卡級別進行交換,而不是在單個Tx/Rx埠進行交換。Revertive覈取方塊呈灰色顯示且不可用。預設情況下,1:N保護組是反向的,因此,在糾正原始故障或清除軟體開關之後,流量會切換回工作卡。您可以預配置以分鐘為單位的時間將在更正故障和將流量切換回工作設施之間傳遞。(恢復時間僅適用於自治交換機(如物理故障),不適用於軟體或使用者啟動的交換機。清除軟體交換機將-使流量立即切換回工作設施。)預設恢復時間為5分鐘。



ONG 15454 1:1保護設定

在1:1保護組中設定DS3、DS3E或DS1卡是1:N情況下的一種特殊情況。任何DS3-12或DS3-12N都 可以用作工作卡或保護卡。工作卡和保護卡必須位於相鄰插槽中,工作卡位於偶數插槽中,保護卡 位於奇數插槽中。同樣,可用於工作流量的插槽取決於機箱背板的型別。

要建立1:1保護組,請按照上面的1:N示例選擇適當的卡和插槽。

刪除保護組

無論採用何種保護方案(1+1、1:1、1:N),刪除保護組的過程都是相同的。

要刪除保護組,請在「擴展架」檢視中按一下Provisioning頁籤,然後按一下Protection頁籤。從「 保護組」視窗中選擇要刪除的保護組。在本示例中,我們將刪除OC12保護組。





2. 將出現一個對話方塊,要求您確認刪除保護組。



已成功刪除保護組。

維護操作

可用的維護操作取決於您建立的保護組的型別。

<u>1+1維護操作</u>

1+1保護方案適用於光埠,並遵循從GR-253調整的SONET交換分層結構,如下所示。其中的一些功能,例如鍛鍊,並不適用於1+1線性保護方案。1+1保護組當前無法識別高或低交換優先順序。

Bit 1234	Automatically Initiated, External, or State Request (Note 1)
1111	Lockout of Protection
1110	Forced Switch
1101	SF - High Priority (Note 2)
1100	SF - Low Priority
1011	SD - High Priority (Note 2)
1010	SD - Low Priority
1001	(not used)
1000	Manual Switch
0111	(not used)
0110	Wait-to-Restore (Note 3)
0101	(not used)
0100	Exercise (Note 4)
0011	(not used)
0010	Reverse Request (Note 5)
0001	Do Not Revert (Note 6)
0000	No Request

Notes:

 Request priority is in descending order, except that an SF request by the null channel (for an SF condition detected on the protection line) has a higher priority than a Forced Switch (i.e., it is between Lockout of Protection and Forced Switch).

- 2. High Priority codes apply only to the 1:n architecture.
- 3. 1+1 LTE provisioned for nonrevertive switching does not transmit Wait-to-Restore.
- Exercise may not be applicable in some linear APS systems.
- 5. Reverse Request applies only to bidirectional systems.
- 6. Only 1+1 LTE provisioned for nonrevertive switching transmits Do Not Revert.

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其 <u>15454-Cisco ONS 15454支</u>持以下用於操作工作卡和保護卡的維護功能:

- LOCKOUT_OF_PROTECTION
- FORCED_SWITCH_TO_PROTECT
- FORCED_SWITCH_TO_WORKING
- MANUAL_SWITCH_TO_PROTECT
- MANUAL_SWITCH_TO_WORKING
- •清除

Cisco TC 2.x版本 (思科傳輸控制器) 軟體,如下所示:

- 1. 選擇 單擊Maintenance頁籤和Protection選項卡。
- 2. 從「保護組」視窗中選擇一個顯示的保護組。
- 3. 在「Operation」欄位中,按一下下拉箭頭以顯示選項。



LOCKOUT_OF_PROTECTION

啟動保護鎖定會強制所有流量進入工作卡。只要鎖定到位,即使工作卡或工作光纖發生故障,流量 也不會切換到保護卡。如果鎖定已到位,但工作卡或光纖發生故障,流量將中斷。鎖定的優先順序 最高,可覆蓋所有其他交換機請求或故障。您可以通過發出 <mark>思 clear</mark> 指令。

在2.x版中啟動鎖定:

- 1. 在Maintenance頁籤和Protection頁籤中,選擇在「操作」欄位中按一下鎖定保護。
- 2. <mark>選擇 <u>按一下「</u>Apply」</mark>。
- 3. 出現確認對話方塊; 選擇-按一下Yes啟動鎖定並 選擇-按一下No取消鎖定請求。

發出保護鎖定會導致在保護組的工作和保護成員上發出警報。以下示例顯示了OC12保護組上發出 的鎖定警報。



要清除鎖定,請依次轉到**維護**頁籤和**保護**頁籤。在「操作」欄位中, 選擇 按如下所示按一下 Clear。關聯的警報會清除,並且鎖定會被刪除。

在3.x版本中,有兩種選項可將流量鎖定到卡。對工作卡應用鎖定會將流量鎖定到工作卡和光纖。對 保護卡應用鎖定會將所有流量切換到工作卡。在發出解鎖請求之前,流量將保留在工作卡上。如果 鎖定或鎖定處於活動狀態時,工作端發生故障,流量將丟棄。鎖定或鎖定具有最高的優先順序,並 會覆蓋所有其他交換機請求。

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從Maintenance頁籤和Protection頁籤發出鎖定。如果突出顯示保護卡, <mark>選擇</mark>-按一下「Lock Out<u>」</u> <u>,然後</u> 選擇-按一下「Apply」。出現確認對話方塊; <mark>選擇-</mark>按一下Yes啟動鎖定並 <mark>選擇-</mark>按一下No取 消鎖定請求。



發出鎖定會導致針對保護組的受保護成員引發的情況。以下示例顯示對OC48保護組發出鎖定的條件。

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要解除鎖定,選擇從維護保護百籤和Protection頁籤。條件會清除,鎖定會被移除。

對於應用於工作卡的鎖定來說,條件和螢幕是相同的。

啟動「強制切換」會強制所有流量切換到工作卡或保護卡,具體取決於選擇的交換機型別。在「強 制交換機保護」中,所有流量都切換到保護卡和光纖。如果在力交換器就位時,保護端發生故障 ,流量會切換到工作卡和光纖。一旦保護端上的故障得到修復,流量就會切換回保護端。

要保護的強制開關 將<u>如果</u>保護卡或光纖有訊號故障情況,則失敗。在這種情況下,訊號失效會覆蓋 強制開關,流量會一直保持工作狀態。但是,如果保護端存在訊號降解情況,則強制開關保護成功 。

強制開關始終會覆蓋手動開關。鎖定始終會覆蓋強制交換和手動交換機。

其 思 clear 命令刪除強制開關。在不可逆交換中,流量會無限期地保留在保護埠上,直到發出另一 個交換機請求為止。在反向交換中,流量會在清除交換器要求後立即返回到工作連線埠。(等待還 原計時器僅由自治或物理交換機條件啟用,而不由軟體交換機啟用。)

結果類似於發出「強制切換至工作」。

要在2.x版中啟動要保護的強制交換機,請從**Maintenance**頁籤和**Protection**頁籤中選擇Force Switch to Protect from the **Operation**欄位,然後 <mark>選擇 按一下「</mark>Apply」。此時將出現一個確認對話方塊

,通知您交換機可能不會發生,並在執行影響維護的服務之前驗證交換機是否發生了。 <mark>選擇</mark> 按一下 「Yes」以啟動交換器; <mark>選擇</mark> 按一下No取消交換機請求。



強制切換至保護會在保護組的指定工作成員上產生輕微警報,如下所示。

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要刪除Force Switch,請轉到**Maintenance**頁籤和**Protection**頁籤,然後在**Operation**欄位中, <mark>選擇</mark> 按一下「**Clear」**。清除關聯的警報並刪除強制開關。

要在3.x版中啟動要保護的強制交換機,選擇單擊Maintenance頁籤和Protection選項卡。您可以通 過突出顯示工作卡發出強制開關,並且選擇按一下Force。此時將出現一個確認對話方塊,通知您 交換機可能不會發生,並在執行影響維護的服務之前驗證交換機是否發生了。選擇按一下「Yes」 以啟動交換器;選擇按一下No取消交換機請求。



強制切換至保護將導致保護組的指定工作成員遇到情況,而不是出現警報,如下所示。

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要刪除Force Switch,請轉至**Maintenance**頁籤和**Protection**頁籤,然後 選擇 按一下「**Clear」**。相 關條件會清除,強制開關會被移除。

<u>手動切換到工作/保護</u>

啟動「手動切換」會將所有流量切換到工作卡或保護卡,具體取決於選擇的交換機型別。在「手動 切換至保護」中,所有流量都切換到保護卡和光纖。如果在手動交換器就位時,保護端發生故障 ,流量會切換到工作卡和光纖。一旦保護端上的故障得到修復,通訊量 將 交換機回到保護端。

要保護的手動交換機 將-<u>如果</u>保護卡或光纖有訊號降級或訊號故障情況,則失敗。在這種情況下 ,Signal Degrades和Signal Fail都會覆蓋Force Switch和流量 將-<u>仍</u>在工作。

發出 思 clear 命令刪除手動交換機。在非可逆交換中,流量 <u>將 無限</u>地保持在保護端上,直到發出另 一個開關請求。在反向交換中,流量 <u>將 清除</u>交換器要求後,立即返回工作端。(等待還原計時器僅 由自治或物理交換機條件啟用,而不由軟體交換機啟用。)

結果類似於發出Manual Switch to Working。

在2.x版中啟動要保護的手動交換機:

1. 在Maintenance頁籤和Protection頁籤中, <mark>選擇</mark> 在Operation<u>欄位中按一下</u>Manual Switch to Protect<u>。</u> 選擇<u>按一下「</u>Apply」。此時將出現一個確認對話方塊,通知您交換機可能不會發生,並在執 行影響維護的服務之前驗證交換機是否發生了。



3.3. 選擇按一下「Yes」以啟動交換器,或按一下「No」以取消交換器要求。

手動切換會在保護組的指定工作成員上產生輕微警報,如下所示。

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	Synchronize Alarms Delete Cleared Alarms T AutoDelete Cleared Alarms

要刪除Manual Switch,請轉到**Maintenance**頁籤和**Protection**頁籤,然後在**Operation**欄位中, <mark>選擇</mark> 按一下「**Clear」。**關聯的警報 將 清除,然後刪除Manual Switch。

要在3.x版中啟動要保護的手動交換機,選擇 單擊Maintenance頁籤和Protection選項卡。通過突出 顯示工作卡發出要保護的手動開關,並選擇 按一下Manual。此時將出現一個確認對話方塊,通知 您交換機可能不會發生,並在執行影響維護的服務之前驗證交換機是否發生了。選擇Yes啟動交換 機;選擇 按一下No取消交換機請求。



手動切換為保護將導致針對保護組的指定工作成員的狀況而非警報,如下所示。

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要刪除手動交換機,請轉到**維護**頁籤和**保護**頁籤,然後 <mark>選擇</mark>按一下「Clear<u>」。</u>相關條件即會清除 ,並刪除手動開關。

<u>1:N維護操作</u>

1:N保護方案適用於DS1和DS3卡。1:N保護交換始終是可逆的。當發生故障或任何工作卡上的開關時,流量會切換到插槽3或插槽15中的保護卡。流量會一直保留在保護卡上,直到故障修復或軟體 開關釋放為止。然後,流量會恢復到原始工作卡。

1:1保護是1:N的特殊情況。保護卡始終位於奇數編號的插槽中。1:1保護組可以設定為可恢復或不可 恢復。在反向交換中,流量會在故障或軟體交換器清除後還原到指定的工作卡。在不可逆交換中 ,流量會無限期地保留在保護卡上,或者直到下一個故障或軟體切換為止。

本節介紹1:1和1:N案例的維護功能的操作。

<u>版本2.x</u>

在2.x版本中, 15454-Cisco ONS 15454支持以下用於操作工作卡和保護卡的維護功能:

- 力
- 手動
- •清除

您可以通過選擇按一下Maintenance頁籤和Protection頁籤。從「保護組」視窗中選擇一個顯示的

保護組。在「Operation」欄位中,按一下下拉箭頭以顯示選項。

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<u>強制開闢</u>

啟動強制交換會將所有流量切換到指定的保護卡。如果在強制交換器就位時,保護卡出現故障,流 量會切換回工作卡。一旦清除保護卡上的故障,流量就會切換回保護卡。

發出 思 clear 命令刪除強制開關。在1:N和1:1可逆情況中,流量 將 <u>清除</u>交換器要求後,立即返回工 作卡。(等待還原計時器僅由自治或物理交換機條件啟用,而不由軟體交換機啟用。)

- 在1:1不可恢復的情況下,流量會無限期地保留在保護卡上,直到出現另一個故障或交換機請求。
- 在1:1不可恢復的情況下,如果流量最初位於保護卡上,則強制交換機請求會將流量切換到工作 卡,其結果與上述結果相似。

注意: 強制開關 將 覆蓋手動交換機。但是,這不是SONET APS保護,因此不應將其誤認為保護。

要啟動2.x版中要保護的強制交換機,選擇單擊Maintenance頁籤和Protection選項卡。

通過突出顯示工作卡發出強制開關以保護 選擇 按一下Force。此時將顯示確認對話方塊。 選擇 按 一下「Yes」以啟動交換器; 選擇 按一下No取消交換機請求。

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	Alarms History Circuits Provisioning Inventory Database Protection Groups Effer Bridge Protection Ring Software MC Cards Diagnostic Timing Audit	Selected Oroup slot 3 (DS3N), Protect/Active slot 1 (DS3), Working/Active slot 2 (DS3), Working/Active slot 5 (DS3), Working/Active slot 6 (DS3), Working/Active
Operation:		Operation:

強制切換至保護會在保護組的指定工作成員上產生輕微警報,如下所示。

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Ella GoTa Help								
Node : IP Addr : 172.20.21 Booted : 3/20/03 12: CR= 0 MJ= 3 MN= 3 User : CISCO15 Authority: Superuser	14.107 103 PH							12 14 15 16 17
Name Law 1 and	1	les.	· 1					
Warms History Circuits	Provisioning	mentory Main	ntenance	22000	1	1	1	2.000
Date	Туре	Slat	Port	Bev	ST	SA	Cond	Description
01/01/70 18:54:53	SLOT-1	1		MN	R	-	FORCED-REQ	Forced switch request on facility/equipment
01/01//018/51/37	STNC-NE			NR	R.		513	Stratum 3 traceable
01/01//018/01/37	SYNCINE			NH	B	1	EDNOCIMIC	Synchronization Switch 10 Intro reference.
01/01/70 19:51-27	SYNC NE			MN.	P.	14	PRINCIPAL PRINCI	Loss of trains on secondary prochagation link
01/01/70 18:51 37	SYNC-NE			MN	R		SYNCPRI	Loss of timing on primary synchronization link
01/01/70 18:51:37	BITS-J			MJ	R	5	LOS	Loss of Signal
01/01/70 18:51 37	BITS-1			MJ	R	Ø	LOS	Loss of Signal
	-	-					1.1	1 NS
				1				
		Synchi	onize Alarms	Delete	2 Cleared Al	arms	AutoDelete Cleared A	Vams
AStart 🕜 🥭 🥥 🖯	a 🔊 🛃 20.0	oc - Microsoft W	ord CMSL	ALMCHER - NO	t C:!!!	INNT(sy Ct)	WDMT/system32(java.ex	о 😥 🛄 🖉 🖉 🖓 🖉 👘 12:10 РМ

要刪除Force Switch,請轉到**Maintenance**頁籤和**Protection**頁籤,然後在**Operation**欄位中, <mark>選擇</mark> 按一下「**Clear」。**清除關聯的警報並刪除強制開關。

<u>手動交換機</u>

啟動手動交換機會將所有流量切換到指定的保護卡。如果在手動交換器就位時,保護卡出現故障 ,流量會切換回工作卡。一旦保護卡上的故障得到修復,流量就會切換回保護卡。

發出 思 clear 命令刪除手動交換機。在1:N和1:1反向情況下,流量會在清除交換器要求後立即返回 到工作卡。(等待還原計時器僅由自治或物理交換機條件啟用,而不由軟體交換機啟用。)

- 在1:1不可恢復的情況下,流量會無限期地保留在保護卡上,直到出現另一個故障或交換機請求。
- 在1:1不可恢復的情況下,如果流量最初位於保護卡上,則手動切換請求會使用類似於上述條件 的條件將流量切換到工作卡。

注意: 強制開關會覆蓋手動開關。但是,這不是SONET APS保護,因此不應將其誤認為保護。

要在2.x版中啟動要保護的手動交換機,請轉到**維護**頁籤和**保護**頁籤。 <mark>選擇-在Operation</mark>欄位中按一 下Manual<u>,然後</u>選擇-按一下「Apply」。此時將顯示確認對話方塊。 選擇-按一下「Yes」以啟動 交換器; 選擇-按一下No取消交換機請求。

(free concentration of the con	<u>_8</u> 2
Ella go To Help	
Node : IP Addm : 172.20.214.107 Booted : 2/20/03 12:03 PM CR- 0 MJ- 3 MM- 3 User : CISCO15 Authority: Superuser	
Alarms History Circuits Provisioning Inventory Main Database Effer Bridge Protection Ring Software XC Cards Diagnostic Timing Audit	Selected Oroup slot 3 (DS3N), ProtectMctive Not 1 (DS3), Working/Active slot 2 (DS3), Working/Active slot 6 (DS3), Working/Active slot 6 (DS3), Working/Active
	Operation: Constant and the second se

手動切換會在保護組的指定工作成員上產生輕微警報,如下所示。

Scic.								_ 8 2
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Node : IP Addr : 172.20.21 Booted : 2/20/02 12: CR= 0 MJ= 3 MN= 3 Uver : CISCO15 Authority: Superuser	14, 107 103 PH							12 14 15 16 17
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Analise History Circuits	Provisioning	Inventory Mail	ntenance	-				2000,000
Light	rype	EIOT	Port	DRV	51	BA	Cond	Description
01/01/70 18:56:04	SVNC-NE			NE	R	-	MANUAL-HEU	Manual switch request on facilityequipment
010170185137	SYNC-NE			NR	R.		SMTOTHED	Supervision Switch To Third reference
01/01/70 18:51 37	SYNC-NE			MJ	R	10	FRNGSYNC	Free Running Synctronization mode
01/01/70 18:51 37	SYNC-NE			MN	R	-	SYNCSEC	Loss of timing on secondary synchronization link.
01/01/70 18:51 37	SYNC-NE			MPJ	R		SYNCPRI	Loss of Iming on primary synchronization link
01/01/70 18:51:37	BITS-J		_	MJ	R	17	LOS	Loss of Bignal
01/01/70 18:51 37	BITS-1			MJ	B	Ø	LOS	Loss of Signal
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		Synchi	ronize Alarms	Delete	Cleared Al	arms	AutoDelete Cleared A	lams
Astart 🚮 🥵 💐 🖯	🔊 🔊 🛃 20. d	oc - Microsoft W	ord CMSL	ALMCHER - NO	t 🖬 C:\W	(INNT) system	132) T CTC	1212PM

要刪除手動交換機,請轉到**維護**頁籤和**保護**頁籤。在Operation欄位中, 選擇 按一下「Clear」。</u>清 除關聯的警報並刪除強制開關。

<u>版本3.x</u>

在3.x版本中,SONET APS術語已刪除。其 <u>15454 Cisco ONS 15454支</u>持以下用於操作工作卡和保 護卡的維護功能:

- 交換器
- 鎖定
- 鎖定
- 解鎖
- •清除

顯示方式 選擇-按一下Maintenance頁籤和Protection頁籤。從「保護組」視窗中選擇一個顯示的保 護組。選項 將-根據突出顯示保護組的哪個成員進行更改。

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SC	Jackson			
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rms Condi Database	tions History Circuits Protection Groups	Provisioning Inven	1 2 3 4 5 5 7 8 9 10 11 12 13 14 15 18 17 entory Maintenance Selected Group	
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rms Cond Database ther Bridge Protection Ring Software XC Cards Diagnostic Timing Audit Duging Table est Access	tions History Circuits Protection Groups	Provisioning Inver	1 2 3 4 5 7 8 9 10 11 12 13 14 16 17 sertory Maintenance Selected Group Glot 3 (OB3N), Protect/Standby stot 1 (DS3), Working/Active stot 4 (DS3), Working/Active stot 5 (DS3), Working/Active stot 5 (DS3), Working/Active stot 5 (DS3), Working/Active stot 5 (DS3), Working/Active Swttch Commands:	

<u>交換器</u>

其 <mark>S-<u>交換器</u> 命令會將發出該命令的工作卡的所有流量切換到保護卡。要啟動要保護的交換機,請突 出顯示工作卡並 選擇-按一下「Switch」。此時將顯示確認對話方塊。 選擇-按一下「Yes」以啟動 交換器; 選擇-按一下No取消交換機請求。</mark>

File Edg Street	lisco Transport Controller	<u>_16</u>
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SD	Jackson	
OCR IP Addz : 1 Booted : 2/2 User : C Authority: B	2 MN 72.20.214.107 D/G2 11:13 AM ISCO15 uperuser	
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XC Cards Diagnostic Timing Audit Routing Table		slot 6 (D53), Working/Active
Test Access		Switch Commands:

切換為保護將導致出現針對保護組的指定工作成員的狀況,而不是警報,如下所示。

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NA R SSM-ST3 Stratum 3 Traceable 2002 11.46 SYNC-NE NA R SWT0THIRD Swtch To Third reference 2002 11.46 SYNC-NE MJ R SWT0THIRD Swtch To Third reference 2002 11.46 SYNC-NE MJ R Findes/NC Free Running Synchronization mode 2002 11.46 SYNC-NE MN R SYNCSEC Secondary Synchronization Reference Failure 2002 11.46 SYNC-NE MN R SYNCSEC Secondary Synchronization Reference Failure 2002 11.46 SYNC-NE MN R SYNCPRI Primary Synchronization Reference Failure 2002 11.46 BITS-2 NR R LOF Loss of Frame 2002 11.46 BITS-2 MJ R Loss of Signal Insect Signal	
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2002 11:46 BITS-2 MJ R Z LOS Loss of Signal	
Action at the second se	
2000211-46 BITE-1 NP IB LOF Loss of Frame	
2002 11 46 BITS-1 MJ B P LOS Loss of Signal	
2002 11:46 BLOT-5 DB3 LINE CA. 5 1 NA R WKSWPR Switched to Protection unit	
Reart 74 45 23 (3) * Why down Marco Marcin Marcin Marcine Marcine Marcine Marcine Contactores C	215

若要移除交換器,請前往Maintenance索引標籤和Protection索引標籤。在Operation欄位中, <mark>選擇</mark> 按一下「Clear<u>」。</u>關聯的條件即會清除,交換器也會被移除。

鎖定/鎖定

通過鎖定或鎖定工作卡或保護卡,可以抑制1:N或1:1保護組中的保護切換。當流量位於工作卡上時 ,應用鎖定可防止流量從工作卡切換到保護卡。要對保護卡執行維護,必須對保護組的每個工作成 員應用鎖定以防止切換。

如果在鎖定處於活動狀態時工作卡出現故障,將-drops。

要啟動鎖定, <mark>選擇</mark>按一下Maintenance<u>頁籤,然後按一下</u>Protection<u>頁籤,突出顯示工作卡。</u> 選擇 按一下「Lock On<u>」。</u>此時將顯示確認對話方塊。 <mark>選擇</mark>-按一下Yes<u>啟動鎖定;</u> 選擇-</u>按一下No可取 消鎖定請求。



鎖定將導致針對保護組的指定工作成員的狀況,而不是警報,如下所示。

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若要移除鎖定條件,請前往Maintenance索引標籤和Protection索引標籤,然後在Operation欄位中 , <mark>選擇</mark>按一下「Unlock」。關聯的條件為clear,並且鎖定已移除。

當流量位於工作卡上時,應用鎖定可防止流量從保護卡切換到工作卡。要在工作卡上進行維護,必 須在流量切換到保護卡後對工作卡應用鎖定。

如果在鎖定處於活動狀態時保護卡出現故障,流量將會丟棄。

要啟動鎖定, <mark>選擇</mark>按一下Maintenance<u>頁籤,然後按一下</u>Protection<u>頁籤,突出顯示工作卡。</u> 選擇 按一下「Lock Out<u>」。</u>確認對話方塊 <u>將 出現</u>。 選擇 按一下Yes 將 啟</u>動鎖定; 選擇 按一下**否** 將 <u>取</u> <u>消</u>鎖定請求。

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如以下所示,鎖定將導致針對保護組的指定工作成員的狀況,而不是警報。

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要刪除鎖定,請轉到Maintenance頁籤和Protection頁籤,然後在Operation欄位中, <mark>選擇</mark>按一下「 Unlock<u>」。</u>關聯條件 <u>將-清</u>除和鎖定 <u>將是-已</u>刪除。

<u>附加1:N操作</u>

1:N保護方案允許1個保護卡(在插槽3或15中)用作最多5個工作卡的保護。在下面的示例中,卡 1、2、4、5和6上有工作流量。

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1	2	3	4	5	6	7	8

如果工作卡#1能發生故障或在其上發起交換請求,來自工作卡#1的流量將交換到插槽3中的保護卡

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D S 3	D S 3	D S 3 N	D S 3	D S 3	D S 3	T C C	X C V T
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1	2	3	4	5	6	7	8

Γ

如果發生此#2況時工作卡連線失敗,工作卡連線埠上的流#2會捨棄。現在駐留在插槽3#1保護卡上 的來自工作卡的流量不會受到影響。

D S 3	D S 3	D S 3 N	D S 3	D S 3	D S 3	T C C	X C V T
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1	2	3	4	5	6	7	8

如果固定了工作卡#1,或者移除了該卡上的交換請求,流量將切換回工作卡#1。然後,將工作卡 #2的流量切換到插槽3中的保護卡,恢復該流量。

D S 3	D S 3	D S 3 N	D S 3	D S 3	D S 3	T C C	XCVT
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1	2	3	4	5	б	7	8

固定工作卡#2或移除交換器要求時,流量會切換回工作卡#2,使插槽3中的保護卡再次可用。

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K I N	K I N	T E	K I N	K I	'K I N		
G	G	Ť	G	G	G		
1	2	3	4	5	6	7	8

相關資訊

• 技術支援 - Cisco Systems