

# 將LIBfc與VMware和Cisco VIC結合使用，對啟動器/目標通訊進行故障排除

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## 簡介

本文檔介紹如何使用隱藏的libfc調試對ESXi中的光纖通道(FC)通訊中使用的埠登入(PLOGI)過程獲得低級別可見性。啟用debug\_logging後，我們就能看到有關延伸連結服務(ELS)訊框的聚合網路配接器(CNA)資訊，例如光纖登入(FLOGI)、連線埠登入(PLOGI)，我們通常看不到這些資訊。如果沒有Finisar方便或SPAN，並且您想要確保主機在FC堆疊中完成或不完成的任務，則此功能非常有用。

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## 支援的配置

目前，只有帶有Cisco Virtual Interface Card(VIC)的ESX支援此功能，但據我所知，其他介面卡不支援此功能。

## 標識當前設定

可以在ESXi主機上使用以下命令以確保尚未設定此值：

```
From the CLI of ESXi:
```

```
esxcli system module parameters list -m libfc_92
```

```
esxcli system module parameters list -m libfc_92
```

輸出應如下所示，請注意沒有為debug\_logging配置該值，我們在後續步驟中會更改該值。

```

~ # cat /var/log/vmkernel.log | grep <6>
~ # esxcli system module parameters list -m libfc_92
Name                Type  Value  Description
-----
debug_logging       int   a bit mask of logging levels
heap_initial        int   Initial heap size allocated for the driver.
heap_max            int   Maximum attainable heap size for the driver.
min_exch_pool_elem int   Minimum number of elements guaranteed to be allocated for exchange pool.
rec_tov            int   REC timeout value
skb_mpool_initial   int   Driver's minimum private socket buffer memory pool size.
skb_mpool_max       int   Maximum attainable private socket buffer memory pool size for the driver.
~ # esxcli system module parameters list -m libfc0e_92
Name                Type  Value  Description
-----
debug_logging       int   a bit mask of logging levels
heap_initial        int   Initial heap size allocated for the driver.
heap_max            int   Maximum attainable heap size for the driver.
skb_mpool_initial   int   Driver's minimum private socket buffer memory pool size.
skb_mpool_max       int   Maximum attainable private socket buffer memory pool size for the driver.
~ # _

```

## 更改LIBfc debug\_logging設定

為了獲得在ESXi上的/var/log/vmkernel.log檔案中顯示的其他資訊，我們需要啟用debug\_logging並必須重新啟動主機：

```
esxcli system module parameters set -p debug_logging=0xf -m libfc_92
```

```
esxcli system module parameters set -p debug_logging=0xf -m libfc0e_92
```

輸入此命令後，您可以再次檢查以確保此值現在設定為0xf:

```

~ # esxcli system module parameters set -p debug_logging=0xf -m libfc_92
~ # esxcli system module parameters set -p debug_logging=0xf -m libfc0e_92
~ # esxcli system module parameters list -m libfc0e_92
Name                Type  Value  Description
-----
debug_logging       int   0xf   a bit mask of logging levels
heap_initial        int   Initial heap size allocated for the driver.
heap_max            int   Maximum attainable heap size for the driver.
skb_mpool_initial   int   Driver's minimum private socket buffer memory pool size.
skb_mpool_max       int   Maximum attainable private socket buffer memory pool size for the driver.
~ # esxcli system module parameters list -m libfc_92
Name                Type  Value  Description
-----
debug_logging       int   0xf   a bit mask of logging levels
heap_initial        int   Initial heap size allocated for the driver.
heap_max            int   Maximum attainable heap size for the driver.
min_exch_pool_elem int   Minimum number of elements guaranteed to be allocated for exchange pool.
rec_tov            int   REC timeout value
skb_mpool_initial   int   Driver's minimum private socket buffer memory pool size.
skb_mpool_max       int   Maximum attainable private socket buffer memory pool size for the driver.

```

我們尚未完成，在重新啟動ESXi主機之前，您將看不到新日誌。重新引導ESXi主機後，可以通過運行以下命令驗證您在vmkernel.log檔案中看到此新的更新資料：

```
cat /var/log/vmkernel.log | grep "<6>"
```

由於所有命令都具有此<6>標頭，因此很容易找到，因此我在下麵包含了一個新有用資訊的片段，顯示了FLOGI和PLOGI狀態：

```

2016-04-01T16:12:39.672Z cpu21:8803<6>fnic : 3 :: vNIC flags 0x8 luns per tgt 256
2016-04-01T16:12:39.672Z cpu21:8803<6>fnic : 3 :: vNIC flogi_retries 8 flogi timeout 4000
2016-04-01T16:12:39.672Z cpu21:8803<6>fnic : 3 :: vNIC plogi_retries 8 plogi timeout 20000
2016-04-01T16:12:39.672Z cpu21:8803<6>fnic : 3 :: vNIC io throttle count 16 link dn timeout 30000
2016-04-01T16:12:39.672Z cpu21:8803<6>fnic : 3 :: vNIC port dn io retries 30 port dn timeout 30000
2016-04-01T16:12:39.673Z cpu21:8803<6>fnic : 3 :: vNIC interrupt mode: MSI-X
2016-04-01T16:12:39.673Z cpu21:8803<6>fnic : 3 :: vNIC resources avail: wq 2 cp_wq 1 raw_wq 1 rq 1 cq 3 intr 4
2016-04-01T16:12:39.673Z cpu21:8803<6>fnic : 3 :: firmware uses non-FIP mode
2016-04-01T16:12:39.680Z cpu21:8803<6>host3: lport ffffffff: Entered RESET state from reset state
<6>Broadcom NetXtreme II CNIC Driver cnic v1.74.04.v50.1 (September 11, 2012)
<6>bnx2fc: Broadcom NetXtreme II FCoE Driver bnx2fc v1.74.02.v50.2 (Aug 28, 2012)
2016-04-01T16:12:40.341Z cpu1:8761<6>host2: libfc: Link up on port ( 0)
2016-04-01T16:12:40.341Z cpu1:8761<6>host2: lport 0: Entered FLOGI state from reset state
2016-04-01T16:12:40.354Z cpu2:8763<6>host2: lport 0: Received a FLOGI accept
2016-04-01T16:12:40.354Z cpu2:8763<6>host2: Assigned Port ID 10003
2016-04-01T16:12:40.354Z cpu2:8763<6>host2: fip: received FLOGI LS_ACC using non-FIP mode
2016-04-01T16:12:40.354Z cpu2:8763<6>host2: lport 10003: Entered DNS state from FLOGI state
2016-04-01T16:12:40.354Z cpu2:8763<6>host2: rport fffffc: Login to port
2016-04-01T16:12:40.354Z cpu2:8763<6>host2: rport fffffc: Port entered PLOGI state from Init state
2016-04-01T16:12:40.356Z cpu18:8733<6>host2: rport fffffc: Received a PLOGI accept
2016-04-01T16:12:40.357Z cpu18:8733<6>host2: rport fffffc: Port is Ready
2016-04-01T16:12:40.357Z cpu18:8733<6>host2: rport fffffc: work event 1
2016-04-01T16:12:40.357Z cpu18:8733<6>host2: rport fffffc: callback ev 1
2016-04-01T16:12:40.357Z cpu18:8733<6>host2: lport 10003: Received a 1 event for port (fffffc)

```

## 將LIBfc debug\_logging更改回原始設定：

您可以通過插入下面的2個命令並重新啟動ESXi主機，將此更改回預設值。我們基本上只是將之前的更改歸零，將其重新設定為預設值：

```
esxcli system module parameters set -p debug_logging= -m libfc_92
```

```
esxcli system module parameters set -p debug_logging= -m libfc_92
```

您可以再次運行相同的命令以確保更改成功：

From the CLI of ESXi:

```
esxcli system module parameters list -m libfc_92
```

```
esxcli system module parameters list -m libfc_92
```

它們應如下所示：

```

~ # esxcli system module parameters list -m libfc_92
Name      Type  Value  Description
-----
debug_logging  int   a bit mask of logging levels
heap_initial  int   Initial heap size allocated for the driver.
heap_max      int   Maximum attainable heap size for the driver.
min_exch_pool_elem  int   Minimum number of elements guaranteed to be allocated for exchange pool.
rec_tov       int   REC timeout value
skb_mpool_initial  int   Driver's minimum private socket buffer memory pool size.
skb_mpool_max  int   Maximum attainable private socket buffer memory pool size for the driver.
~ # esxcli system module parameters list -m libfc_92
Name      Type  Value  Description
-----
debug_logging  int   a bit mask of logging levels
heap_initial  int   Initial heap size allocated for the driver.
heap_max      int   Maximum attainable heap size for the driver.
skb_mpool_initial  int   Driver's minimum private socket buffer memory pool size.
skb_mpool_max  int   Maximum attainable private socket buffer memory pool size for the driver.
~ #

```

重新啟動ESX主機後，您可以通過使用以下命令檢查以確保調試已進入日誌：

```
tail /var/log/vmkernel.log | grep "<6>"
```