

## Focus Lab 12: FC-SP

### Overview

Fabric Channel Security Protocol (FC-SP) provides switch-to-switch and host-to-switch authentication. In this lab you will learn how to perform switch-to-switch authentication using locally stored and remotely stored passwords. Remote authentication will be done using AAA server.

The following features are covered in this Focus Lab:

- FC-SP Fabric Security
- FC-SP with local authentication
- FC-SP with AAA authentication

### ieMentor Storage VRACK support

Our VRACK is fully compliant with this lab.

## Configuration Solutions

### Task 12.1

```

MDS1(config)# fcsp enable
MDS2(config)# fcsp enable

MDS1# show wwn sw
Switch WWN is 20:00:00:0d:ec:07:ae:c0

MDS2# show wwn sw
Switch WWN is 20:00:00:0d:ec:07:af:80

MDS1(config)# fcsp dhchap password mds1password2 20:00:00:0d:ec:07:af:80
MDS2(config)# fcsp dhchap password mds2password

MDS1(config)# fcsp dhchap devicename 20:00:00:0d:ec:07:af:80 password mds2password
MDS2(config)# fcsp dhchap devicename 20:00:00:0d:ec:07:ae:c0 password mds1password2

MDS1(config)# int fc1/9-11
MDS1(config-if)# fcsp auto-active 30

MDS1# sh int fc1/9 | inc FCSP
FCSP Status: Successfully authenticated

MDS1# sh int fc1/9 | inc FCSP
FCSP Status: Authentication in progress

2008 Sep 21 10:31:08 MDS1 %FCSP-MGR-2-FCSP_AUTHENT_FAILURE: FC-SP Authentication failure on Port
fc1/9 (FC-SP Failure Reason: FCSP_AUTHENT_FAILURE )

MDS1# sh int fc1/9 | inc FCSP
fc1/9 is down (Isolation due to FCSP failure)
FCSP Status: Authentication failed

MDS1(config)# int fc1/9
MDS1(config-if)# shut
MDS1(config-if)# no shut

MDS1# sh int fc1/9 | inc FCSP
FCSP Status: Successfully authenticated

```

*If you are asked to configure re-authentication period in the lab and you notice that your SAN-OS version also has this problem, notify your proctor!*

```

MDS1(config)# int fc1/9-11
MDS1(config-if)# shut
MDS1(config-if)# fcsp auto-active 0
MDS1(config-if)# no shut

MDS1(config)# int fc1/8
MDS1(config-if)# fcsp on 120

MDS2(config)# int fc1/8
MDS2(config-if)# fcsp on 120

MDS1(config)# int fc1/7
MDS1(config-if)# fcsp off

MDS2(config)# int fc1/7
MDS2(config-if)# fcsp off

MDS2(config)# aaa authentication dhchap default group ACS

MDS2(config)# int fc1/8
MDS2(config-if)# shut
MDS2(config-if)# no shut
2009 Jan 4 10:29:55 MDS2 %FCSP-MGR-2-FCSP_AUTHENT_FAILURE: FC-SP Authentication failure on Port
fc1/8 (FC-SP Failure Reason: FCSP_AUTHENT_FAILURE [Auth_RJT Reason_Code:FCSP_AUTH_FAILURE
Reason_Code_Exp1:FCSP_AUTH_FAILED])

```

Figure 96: MDS1 DH-CHAP user account

The screenshot shows the Cisco User Setup web interface in a browser window. The page title is "User Setup" and the user being configured is "User: Ox\_200000dec07aec0 (New User)". There is a checkbox for "Account Disabled" which is unchecked. Below this is the "Supplementary User Info" section with fields for "Real Name" (containing "MDS1 sWWN") and "Description". The "User Setup" section includes a "Password Authentication" dropdown set to "ACS Internal Database", a note about CiscoSecure PAP, and fields for "Password" and "Confirm Password", both containing asterisks. "Submit" and "Cancel" buttons are at the bottom.

```
MDS2# show fcsp asciiwn 20:00:00:0d:ec:07:ae:c0
Ascii representation of WWN to be used with AAA servers:ox_200000dec07aec0

MDS2# test aaa server tacacs+ 172.16.3.241 ox_200000dec07aec0 mds1password2
user has been authenticated

MDS1(config)# int fc1/8
MDS1(config-if)# shut
MDS1(config-if)# no shut

MDS2(config)# int fc1/8
MDS2(config-if)# shut
MDS2(config-if)# no shut

MDS2# show int fc1/8 | inc FCSP
FCSP Status: Successfully authenticated
```

## Task 12.2

```
MDS3(config)# fcsp enable

MDS1# show wwn sw
Switch WWN is 20:00:00:0d:ec:07:ae:c0

MDS3# show wwn switch
Switch WWN is 20:00:00:0d:ec:01:ca:40

MDS1(config)# fcsp dhchap password mds1password

MDS3(config)# fcsp dhchap password mds3password1 20:00:00:0d:ec:07:ae:c0

MDS1(config)# fcsp dhchap devicename 20:00:00:0d:ec:01:ca:40 password mds3password1

MDS3(config)# fcsp dhchap devicename 20:00:00:0d:ec:07:ae:c0 password mds1password

MDS1(config)# int fc1/14
MDS1(config-if)# fcsp on
MDS1(config-if)# exit
MDS1(config)# fcsp timeout 20

MDS1(config)# int fc1/14
MDS1(config-if)# shut
MDS1(config-if)# no shut

MDS1# sh int fc1/14 | inc FCSP
FCSP Status: Successfully authenticated

MDS1(config)# int fc1/12-13
```

```

MDS1(config-if)# fcsp auto-active

MDS3(config)# int fc1/1
MDS3(config-if)# fcsp on
MDS3(config-if)# int fc1/2
MDS3(config-if)# fcsp off

MDS3(config)# int fc1/1
MDS3(config-if)# shut
MDS3(config-if)# no shut

MDS3# sh int fc1/1 | inc FCSP
      FCSP Status: Successfully authenticated

MDS3(config)# aaa authentication dhchap default group IAS

MDS1(config)# int fc1/14
MDS1(config-if)# shut
MDS1(config-if)# no shut
2009 Jan  4 11:10:53 MDS1 %FCSP-MGR-2-FCSP_AUTHENT_FAILURE: FC-SP Authentication failure on Port
fc1/14 (FC-SP Failure Reason: FCSP_AUTHENT_FAILURE [Auth_RJT Reason_Code:FCSP_AUTH_FAILURE
Reason_Code_Expl:FCSP_AUTH_FAILED])

```

Figure 97: Local Security Settings

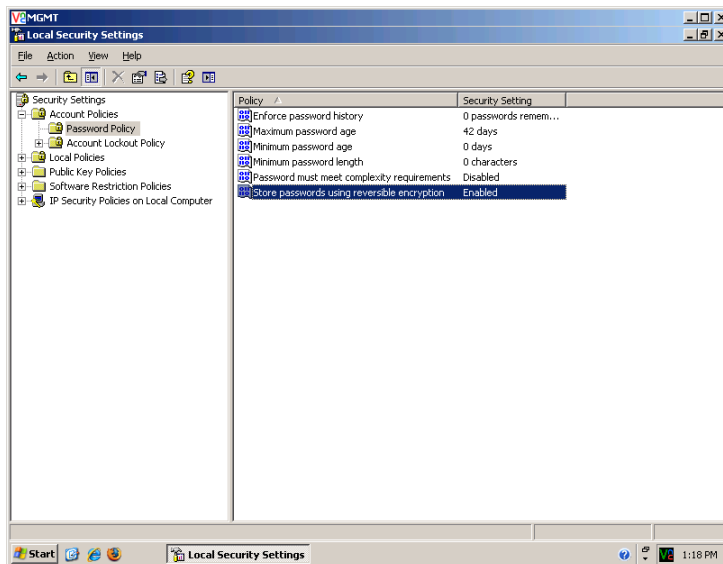


Figure 98: Create FC-SP MDS1 user account

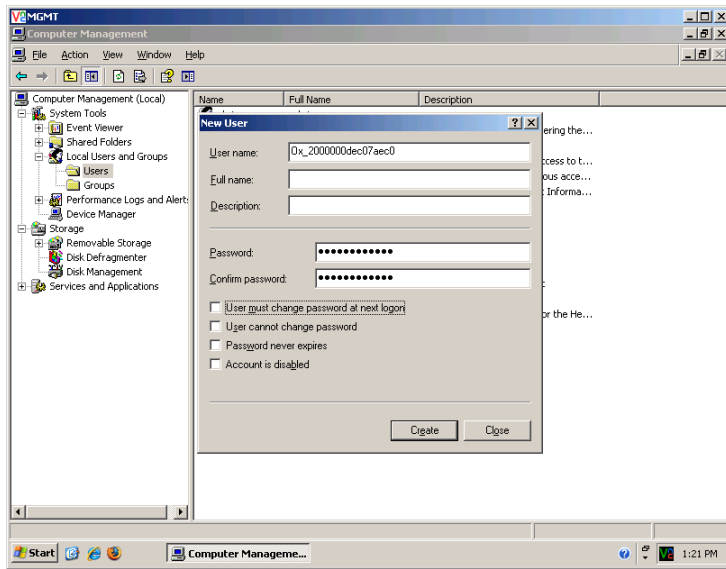


Figure 99: MDS3 RADIUS client

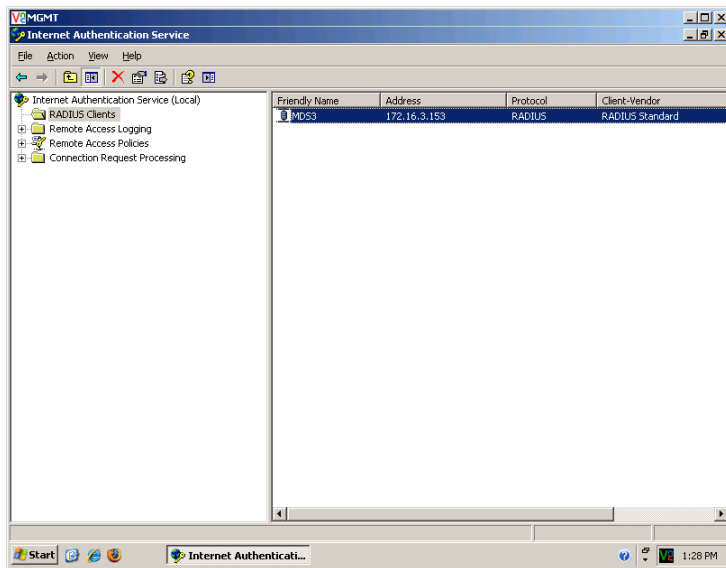
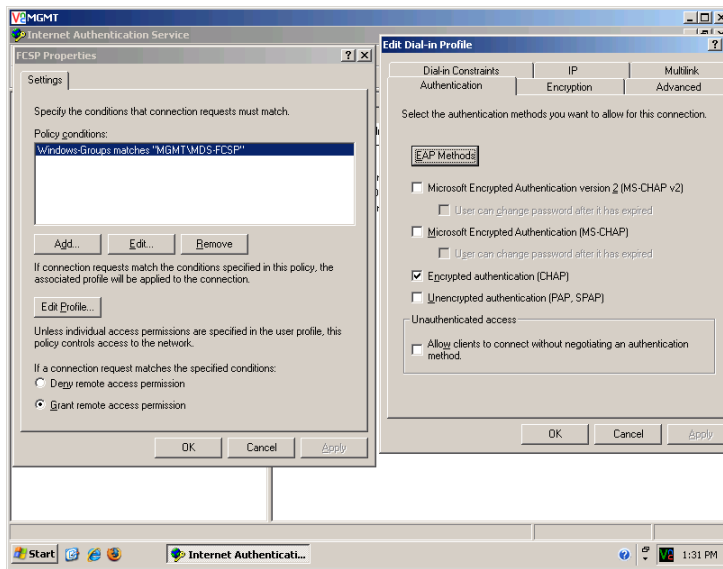
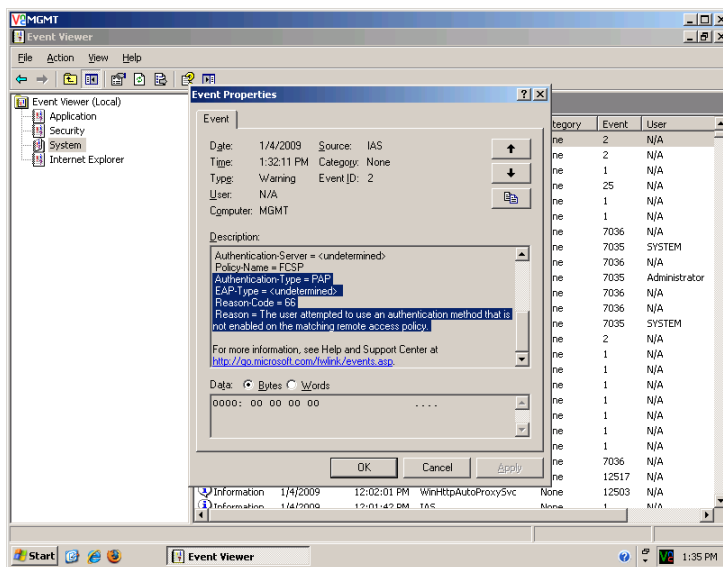


Figure 100: Creating FC-SP authentication policy in IAS



```
MDS3# test aaa server radius 172.16.3.240 ox_2000000dec07aec0 mds1password
user has failed authentication
```

Figure 101: IAS authentication failure event in Windows Event Viewer



```
MDS1(config)# int fc1/14
MDS1(config-if)# shut
MDS1(config-if)# no shut

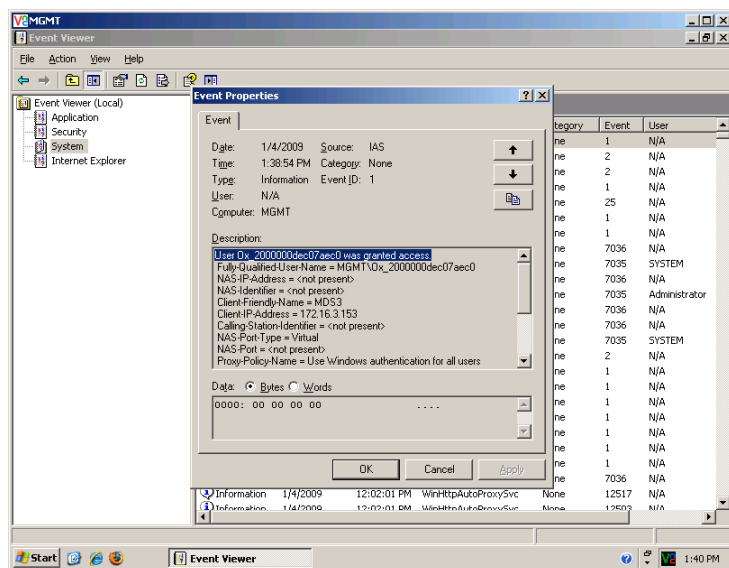
MDS3(config)# int fc1/3
MDS3(config-if)# shut
MDS3(config-if)# no shut

MDS3# show int fc1/3 | inc FCSP
FCSP Status: Successfully authenticated

MDS3# show fcsp interface fc1/3
fc1/3:
fcsp authentication mode:SEC_MODE_AUTO_PASSIVE
```

Status:Successfully authenticated  
Authenticating RADIUS server:172.16.3.240

Figure 102: Successful FC-SP authentication event in Windows Event Viewer



### Task 12.3

```
MDS2# show wwn sw
Switch WWN is 20:00:00:0d:ec:07:af:80

MDS3# show wwn sw
Switch WWN is 20:00:00:0d:ec:01:ca:40

MDS2(config)# fcsp dhchap password mds2password3 20:00:00:0d:ec:01:ca:40

MDS2(config)# fcsp dhchap hash md5

MDS2# show fcsp dhchap
Supported Hash algorithms (in order of preference):
DHCHAP_HASH_MD5

Supported Diffie Hellman group ids(in order of preference):
DHCHAP_GROUP_NULL
DHCHAP_GROUP_1536
DHCHAP_GROUP_1024
DHCHAP_GROUP_1280
DHCHAP_GROUP_2048

MDS3(config)# fcsp dhchap password mds3password2 20:00:00:0d:ec:07:af:80

MDS3(config)# fcsp dhchap hash sha1 md5

MDS3# show fcsp dhchap
Supported Hash algorithms (in order of preference):
DHCHAP_HASH_SHA_1
DHCHAP_HASH_MD5

Supported Diffie Hellman group ids(in order of preference):
DHCHAP_GROUP_NULL
DHCHAP_GROUP_1536
DHCHAP_GROUP_1024
DHCHAP_GROUP_1280
DHCHAP_GROUP_2048
```

Add user account ox\_2000000dec01ca40 and password mds3password2 to the ACS database.

Add user account `ox_2000000dec07af80` and password `mds2password3` to the IAS database. Make sure to add this user account to the MDS-FCSP user group.

```
MDS2(config)# int fc1/14
MDS2(config-if)# fcsp auto-active

MDS3(config)# int fc1/14
MDS3(config-if)# fcsp auto-active
MDS3(config-if)# shut
MDS3(config-if)# no shut

MDS3# show int fc1/14 | inc FCSP
    FCSP Status: Successfully authenticated

MDS3# show fcsp interface fc1/14
fc1/14:
    fcsp authentication mode:SEC_MODE_AUTO_ACTIVE
    Status:Successfully authenticated
    Authenticating RADIUS server:172.16.3.240

MDS2# show fcsp interface fc1/14
fc1/14:
    fcsp authentication mode:SEC_MODE_AUTO_ACTIVE
    Status:Successfully authenticated
    Authenticating TACACS server:172.16.3.241

MDS2(config)# int fc1/12-13
MDS2(config-if)# fcsp off
```

### Task 12.4

```
MDS1(config)# fcsp dhchap dhgroup 3 1 2 4
MDS2(config)# fcsp dhchap dhgroup 3 1 2 4
MDS3(config)# fcsp dhchap dhgroup 3 1 2 4
```