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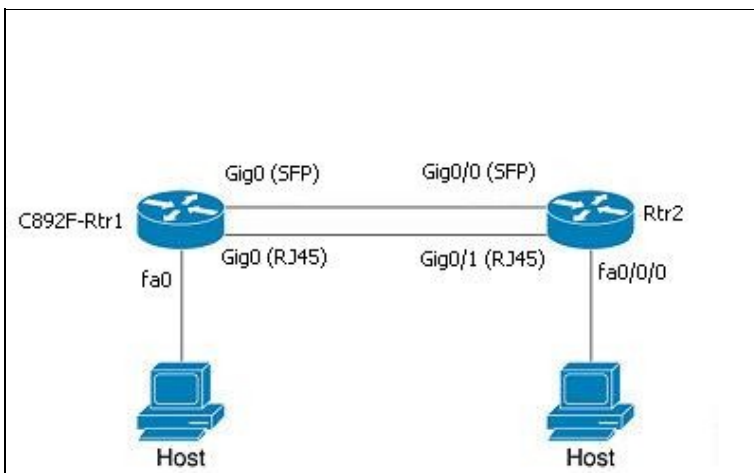
Introduction

The Cisco 892F ISRs have an SFP port that supports auto-media-detection, auto-failover, and remote fault indication (RFI), as described in the IEEE 802.3ah specification.

This is a basic customer configuration for Cisco C892F SFP port. It includes the following elements:

1. Media Type Selection
2. Auto-Failover Mode
3. Speed & Duplex Settings
4. Configure Backup Port
5. Ethernet CFM Configuration

Design



Configuration

1. Media Type Selection

SFP Mode:

```
C892F(config)#int gigabitEthernet 0
C892F(config-if)#media-type ?
  rj45  Use RJ45 connector
  sfp   Use SFP connector
<cr>
```

892F_SFP_Configuration_Example

```
C892F(config-if)#media-type sfp
GigabitEthernet0: Changing media to SFP.
You may need to update the speed and duplex settings for this interface.
C892F(config-if)#
```

RJ45 Mode:

```
C892F(config)#int gigabitEthernet 0
C892F(config-if)#media-type ?
  rj45  Use RJ45 connector
  sfp   Use SFP connector
<cr>
C892F(config-if)#media-type rj45
GigabitEthernet0: Changing media to RJ45.
You may need to update the speed and duplex settings for this interface.
C892F(config-if)#
```

Auto-Detect Mode:

```
C892F(config)#int gigabitEthernet 0
C892F(config-if)#no media-type
GigabitEthernet0: Setting default media-type to UNKNOWN
GigabitEthernet0: Changing media to UNKNOWN.
You may need to update the speed and duplex settings for this interface.
C892F(config-if)#
```

2. Auto-Failover Mode

RJ45 Mode Switchover if SFP fails:

```
C892F(config)#int gigabitEthernet 0
C892F(config-if)#media-type sfp auto-failover
GigabitEthernet0: Changing media to SFP.
You may need to update the speed and duplex settings for this interface.
```

SFP Mode Switchover if RJ45 fails:

```
C892F(config)#int gigabitEthernet 0
C892F(config-if)#media-type rj45 auto-failover
GigabitEthernet0: Changing media to RJ45.
You may need to update the speed and duplex settings for this interface.
```

3. Speed & Duplex Settings

In RJ45 Mode:

```
C892F(config-if)#int gig0
C892F(config-if)#media-type rj45
GigabitEthernet0: Changing media to RJ45.
You may need to update the speed and duplex settings for this interface.
C892F(config-if)#speed ?
  10    Force 10 Mbps operation
  100   Force 100 Mbps operation
  1000  Force 1000 Mbps operation
  auto  Enable AUTO speed configuration
C892F(config-if)#speed 100
C892F(config-if)#duplex ?
  auto  Enable AUTO duplex configuration
  full  Force full duplex operation
```

892F_SFP_Configuration_Example

```
half Force half-duplex operation
C892F(config-if)#duplex full
```

In SFP Mode (Only for GLC-GE-100FX):

```
C892F(config-if)#int gig0
C892F(config-if)#media-type sfp
GigabitEthernet0: Changing media to SFP.
You may need to update the speed and duplex settings for this interface.
C892F(config-if)#speed ?
    100 Force 100 Mbps operation
C892F(config-if)#speed 100
C892F(config-if)#duplex ?
    full Force full duplex operation
    half Force half-duplex operation
C892F(config-if)#duplex full
```

4. Configure Backup port

SFP mode with failover option to RJ45 prior switching to backup Fe8 Port:

```
C892F(config)#int gigabitEthernet 0
C892F(config-if)#media-type sfp auto-failover
GigabitEthernet0: Changing media to SFP.
You may need to update the speed and duplex settings for this interface.
C892F(config-if)#backup interface fastEthernet 8
```

5. Ethernet CFM Configuration

```
C892F(config)#ethernet cfm ieee
C892F(config)#ethernet cfm global
C892F(config)#ethernet cfm traceroute cache
C892F(config)#ethernet cfm domain Customer_Domain level 7
C892F(config-ecfm)#service SID_CE1 vlan 711 direction down
C892F(config-ecfm-srv)#continuity-check
C892F(config-ecfm-srv)#service SID_CE2 vlan 721 direction down
C892F(config-ecfm-srv)#continuity-check
C892F(config-ecfm-srv)#continuity-check loss-threshold 2
C892F(config-ecfm-srv)#ethernet cfm logging
C892F(config)#interface gig0
C892F(config-if)#media-type sfp
GigabitEthernet0: Changing media to SFP.
You may need to update the speed and duplex settings for this interface.
C892F(config-if)#ethernet cfm mep domain Customer_Domain mpid 921 vlan 721
C892F(config-if-ecfm-mep)#ethernet cfm mep domain Customer_Domain mpid 911 vlan 711
C892F(config-if-ecfm-mep)#interface gig0.100
C892F(config-subif)#encapsulation dot1Q 711
C892F(config-subif)#ip address 4.0.0.1 255.0.0.0
C892F(config-subif)#interface gig0.200
C892F(config-subif)#encapsulation dot1Q 721
C892F(config-subif)#ip address 2.0.0.1 255.0.0.0
C892F(config-subif)#end
```

Show Commands

1. Media Type Selection

In SFP Mode:

```
C892F#sh int gigabitEthernet 0 | include media
```

Show Commands

892F_SFP_Configuration_Example

```
Full Duplex, 1Gbps, media type is LX
C892F#sh controllers gigabitEthernet 0 | beg PHY
PHY Registers
-----
Register 0x00:  1000 01ED 0362 5D12 0461 41A0 0006 2001
Register 0x08:  0000 0000 0000 xxxx xxxx xxxx C000
Register 0x10:  0000 2000 0000 0000 0000 0000 xxxx xxxx
Register 0x18:  71E7 1000 0000 FFFF 7C4B 0000 0080 0000
PHY Control (0x00):
AUTONEG_EN
PHY Status (0x01):
AUTONEG_DONE LINK_UP
Auto-Negotiation Advertisement (0x04):
PAUSE 10FD 10HD
Link Partner Ability (0x05):
100FD 100HD 10HD
1000BASE-T Control (0x09):
M/S_AUTO DTE
1000BASE-T Status (0x0A):
M/S_CFG_OK SLAVE
Mode Control Register(0x1C) shadow(0x1F): = 0x7C4B
Auto-Detect Medium Register(0x1C) shadow(0x1E): = 0x7866
Misc control Register(0x18) shadow(111): = 0x71E7
SGMII slave Register(0x1C) shadow(0x15): = 0x57A8
Serdes 100FX control Register(0x1C) shadow(0x13): = 0x4C0A
Serdes 100FX Status Register(0x1C) shadow(0x11): = 0x4400
Register(0x1C) shadow(0x02): = 0xA02

= Media Fiber Optic =

== SFP Registers ==

Reg 0x00:  03 04 07 00 00 00 02 00
Reg 0x08:  00 00 00 01 0D 00 0A 64
Reg 0x10:  37 37 00 00 43 49 53 43
Reg 0x18:  4F 2D 46 49 4E 49 53 41
Reg 0x20:  52 20 20 20 00 00 90 65
Reg 0x28:  46 54 4C 46 31 33 31 38
Reg 0x30:  50 32 42 43 4C 2D 43 53
Reg 0x38:  30 30 30 30 05 1E 00 EB
Reg 0x40:  00 12 00 00 46 4E 53 31
Reg 0x48:  32 33 34 30 48 55 47 20
Reg 0x50:  20 20 20 20 30 38 30 38
Reg 0x58:  32 31 20 20 08 00 00 F2
Reg 0x60:  00 00 02 1B DE 01 C2 85
Reg 0x68:  92 2D 30 C4 EA 5D 35 AF
Reg 0x70:  D6 25 64 00 00 00 00 00
Reg 0x78:  00 00 00 00 73 A7 5B FE

SFP Registers Decode:
  identifier          0x03 (SFP)
  connector           0x07 (LC)
  sfp_transceiver_code 0x02 (1000BaseLX)
  encoding            0x01 (8B10B)
  br_nominal (100MHz) 13
  length_9km (100m)  10
  length_9m (100m)   100
  length_50m (100m)  55
  length_62_5m (100m) 55
  length_cu (10m)    0
  vendor_name         CISCO-FINISAR
  vendor_oui          0x00 90 65
  vendor_pn           FTLF1318P2BCL-CS0
  vendor_rev          0000
```

892F_SFP_Configuration_Example

```
cc_base          0xEB
options[0]      0x00000000
options[1]      0x00000012
br_max (%)      0
br_min (%)      0
vendor_sn       FNS12340HUG
date_code       080821 (yymmddvv, v=vendor specific)
cc_ext          0xF2
Digital Diag Type 0x08 (Not available)
```

```
Tx/Rx Interrupt Counts
Tx Interrupts = 318136, Tx BD Service Count = 318184
Rx Interrupts = 504755, Rx BD Service Count = 317212
```

In RJ45 Mode:

```
C892F#sh int gigabitEthernet 0 | include media
Full Duplex, 1Gbps, media type is RJ45
C892F#sh controllers gigabitEthernet 0 | beg PHY
PHY Registers
-----
Register 0x00:  1000  79C9  0362  5D12  0401  0000  0064  2001
Register 0x08:  0000  0200  0000  xxxx  xxxx  xxxx  xxxx  3000
Register 0x10:  0000  2000  0000  0000  0000  xxxx  xxxx  xxxx
Register 0x18:  71E7  1000  0000  FFFF  21DF  0000  0080  0000
PHY Control (0x00):
AUTONEG_EN
PHY Status (0x01):
LINK_DOWN
Auto-Negotiation Advertisement (0x04):
PAUSE
Link Partner Ability (0x05):

1000BASE-T Control (0x09):
M/S_AUTO DTE 1000FD
1000BASE-T Status (0x0A):
M/S_CFG_OK SLAVE
Mode Control Register(0x1C) shadow(0x1F): = 0x7C08
Auto-Detect Medium Register(0x1C) shadow(0x1E): = 0x7860
Misc control Register(0x18) shadow(111): = 0x71E7
SGMII slave Register(0x1C) shadow(0x15): = 0x5480
Serdes 100FX control Register(0x1C) shadow(0x13): = 0x4C0A
Serdes 100FX Status Register(0x1C) shadow(0x11): = 0x4400
Register(0x1C) shadow(0x02): = 0xA02

= Media RJ45 =

Tx/Rx Interrupt Counts
Tx Interrupts = 318136, Tx BD Service Count = 318184
Rx Interrupts = 504755, Rx BD Service Count = 317212
```

2. Auto Failover Mode

```
C892F# sh run int gigabitEthernet 0
Building configuration...

Current configuration : 79 bytes
!
interface GigabitEthernet0
 no ip address
 media-type sfp auto-failover
end
```

Show Commands

892F_SFP_Configuration_Example

During auto-failover operation, following msg will appear on screen:

```
%MAINBOARD_SFP-6-FAILOVER: SFP link down on port 0, now using RJ45 link
```

```
C892F# sh run int gigabitEthernet 0
Building configuration...
```

```
Current configuration : 79 bytes
!
interface GigabitEthernet0
  no ip address
  media-type rj45 auto-failover
end
```

During auto-failover operation, following msg will appear on screen:

```
%MAINBOARD_SFP-6-FAILOVER: RJ45 link down on port 0, now using SFP link
```

3. Speed & Duplex Settings

```
C892F#sh int gigabitEthernet 0 | include Duplex
Full Duplex, 1Gbps, media type is LX
C892F#sh int gigabitEthernet 0 | include Duplex
Full Duplex, 100Mbps, media type is RJ45
```

4. Configure Backup port

```
C892F#sh run int gigabitEthernet 0
Building configuration...
```

```
Current configuration : 111 bytes
!
interface GigabitEthernet0
  backup interface FastEthernet8
  no ip address
  media-type sfp auto-failover
end
```

```
C892F#sh int gigabitEthernet 0 | include Backup
Backup interface FastEthernet8, failure delay 0 sec, secondary disable delay 0 sec,
```

5. Ethernet CFM Configuration

```
C892F# show ethernet cfm maintenance-points remote
```

MPID	Domain Name	MacAddress	IfSt	PtSt
Lvl	Domain ID	Ingress		
RDI	MA Name	Type Id	SrvcInst	
	EVC Name		Age	
711	Customer_Domain	001b.5428.e582	Up	Up
7	Customer_Domain	Gi0.100		
-	SID_CE1	Vlan 711	N/A	
	N/A		5s	

```
Total Remote MEPs: 1
```

Show running-config

```
C892F#sh run
Building configuration...
```

```
Show running-config
```

892F_SFP_Configuration_Example

```
Current configuration : 2346 bytes
!
! Last configuration change at 08:56:02 PDT Wed Sep 22 2010
! NVRAM config last updated at 08:16:26 PDT Wed Sep 22 2010
!
version 15.1
service timestamps debug datetime msec localtime show-timezone
service timestamps log datetime msec localtime show-timezone
no service password-encryption
!
hostname C892F
!
boot-start-marker
warm-reboot
boot-end-marker
!
!
logging buffered 100000
no logging console
!
no aaa new-model
ethernet cfm ieee
ethernet cfm global
ethernet cfm traceroute cache
ethernet cfm domain C892F level 7
  mep archive-hold-time 1
  service vlan-id 1 port
  mep mpid 8191
!
ethernet cfm domain Customer_Domain level 7
  service SID_CE1 vlan 711 direction down
  continuity-check
  service SID_CE2 vlan 721 direction down
  continuity-check
  continuity-check loss-threshold 2
!
ethernet cfm logging
!
memory-size iomem 25
clock timezone PDT -7 0
!
!
ip source-route
!
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
license udi pid CISCO892F-K9 sn FHK14197241
!
!
!
!
!
!
!
```

Show running-config

892F_SFP_Configuration_Example

```
!  
!  
!  
!  
!  
interface Tunnel0  
  no ip address  
  shutdown  
!  
interface BRI0  
  no ip address  
  encapsulation hdlc  
  shutdown  
  no isdn termination multidrop  
!  
interface FastEthernet0  
!  
interface FastEthernet1  
  shutdown  
!  
interface FastEthernet2  
  shutdown  
!  
interface FastEthernet3  
  shutdown  
!  
interface FastEthernet4  
  shutdown  
!  
interface FastEthernet5  
  shutdown  
!  
interface FastEthernet6  
  shutdown  
!  
interface FastEthernet7  
  shutdown  
!  
interface FastEthernet8  
  no ip address  
  duplex auto  
  speed auto  
!  
interface GigabitEthernet0  
  mtu 9216  
  backup interface FastEthernet8  
  ip address 30.1.1.1 255.0.0.0  
  media-type sfp auto-failover  
  ethernet cfm mep domain Customer_Domain mpid 911 vlan 711  
  ethernet cfm mep domain Customer_Domain mpid 921 vlan 721  
!  
interface GigabitEthernet0.100  
  encapsulation dot1Q 711  
  ip address 4.0.0.1 255.0.0.0  
!  
interface GigabitEthernet0.200  
  encapsulation dot1Q 721  
  ip address 2.0.0.1 255.0.0.0  
!  
interface Vlan1  
  no ip address  
  shutdown  
!  
interface Vlan2
```

Show running-config

892F_SFP_Configuration_Example

```
no ip address
shutdown
!
interface GMPLS0
no ip address
shutdown
no fair-queue
no keepalive
!
no ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
logging esm config
!
!
!
!
!
control-plane
!
!
line con 0
exec-timeout 0 0
line aux 0
line vty 0 4
login
transport input all
!
exception data-corruption buffer truncate
end
```

Related Information

[Technical Support & Documentation - Cisco Systems](#)