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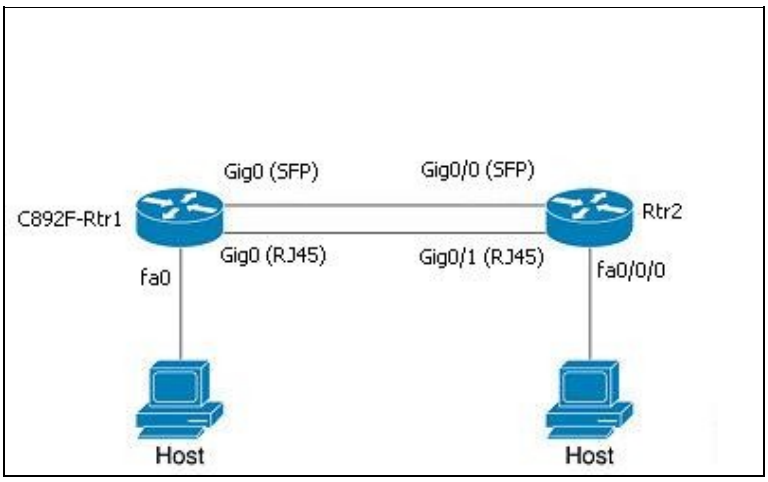
Introduction

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>
```

```
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
```

```
  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
```

```
  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  xxxx  C000
  Register 0x10:   0000  2000  0000  0000  0000  xxxx  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
```

```
   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
```

```
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...
```

```
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
!
!
!
!
!
!
!
!
!
!
```

```
!
!
!
!
!
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
```

```
 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