

Configuring the PPP Protocol Field Compression

For interfaces with PPP, PPP CCC, or PPP TCC encapsulation, you can configure protocol field compression. By default, the protocol field is not compressed. This means PPP-encapsulated packets are transmitted with a two-byte protocol field. For example, IPv4 packets are transmitted with the protocol field set to 0x0021, and MPLS packets are transmitted with the protocol field set to 0x0281.

For all protocols with identifiers in the range 0x0000 through 0x00ff, you can configure the router to compress the protocol field to one byte, as defined in RFC 1661, *The Point-to-Point Protocol (PPP)*. Protocol field compression (PFC) allows you to conserve bandwidth by transmitting less data.



NOTE: The protocol field cannot be compressed in Link Control Protocol (LCP) packets.

The PPP session restarts when you configure or modify compression options.

To configure PFC, include the **compression** statement at the [edit interfaces *interface-name* ppp-options] hierarchy level, and specify **pfc**:

```
[edit interfaces interface-name ppp-options]  
[Unresolved xref] pfc;
```

This configuration causes the local router to try to negotiate PFC with its peer. If PFC is successfully negotiated, the local router sends packets with compressed protocol fields. When you include the **compression pfc** statement in the configuration, the PPP session restarts, and the local router sends the PFC option in the LCP Configure-Request packet. The PFC option informs the local router's peer that the local router can receive packets with compression. If the peer indicates that it, too, can receive packets with compression, then PFC is negotiated. If PFC is successfully negotiated, the local router can receive packets with either 2-byte (uncompressed) or 1-byte (compressed) protocol fields.

To monitor the configuration, issue the **show interfaces *interface-name*** command. Configured options are displayed in the **link flags** field for the physical interface. Successfully negotiated options are displayed in the **flags** field for the logical interface. In this example, both ACFC and PFC are configured, but neither compression feature has been successfully negotiated.

```
user@router# run show interfaces so-0/1/1  
Physical interface: so-0/1/1, Enabled, Physical link is Up  
  Interface index: 133, SNMP ifIndex: 27  
    Link-level type: PPP, MTU: 4474, Clocking: Internal, SONET mode, Speed: OC3,  
    Loopback: None, FCS: 16,  
    Payload scrambler: Enabled  
    Device flags   : Present Running  
    Interface flags: Point-To-Point SNMP-Traps 16384  
    Link flags     : No-Keepalives ACFC PFC  
    LCP state: Opened
```

```

NCP state: inet: Opened, inet6: Not-configured, iso: Not-configured, mpls:
Not-configured
CHAP state: Not-configured
CoS queues      : 4 supported
Last flapped    : 2004-12-29 10:49:32 PST (00:18:35 ago)
Input rate      : 0 bps (0 pps)
Output rate     : 0 bps (0 pps)
SONET alarms    : None
SONET defects   : None
Logical interface so-0/1/1.0 (Index 68) (SNMP ifIndex 169)
Flags: Point-To-Point SNMP-Traps ACFC Encapsulation: PPP
Protocol inet, MTU: 4470
Flags: None
Addresses, Flags: Is-Preferred Is-Primary
Destination: 3.3.3/24, Local: 3.3.3.2, Broadcast: 3.3.3.255

```