

TCP, UDP, RAW and IP Protocol Configuration (TCPCFGxx)

This chapter provides guidelines to help you customize your use of protocols with Cisco IOS for S/390. This chapter includes these sections:

- Fine-tuning the Transmission Control Protocol
Describes how to tailor the TCP parameters for your site.
- Fine-tuning the User Datagram Protocol
Describes how to tailor UDP parameters for your site.
- Fine-tuning the RAW Protocol
Describes how to tailor RAW parameters for your site.
- Fine-tuning the Internet Protocol
Describes how to tailor IP parameters for your site.
- POOLDEF Settings
Describes the control block pools for TCPCFGxx.

Fine-tuning the Transmission Control Protocol

For most sites, the default settings for the TCP statement do not need to be changed. If you have specific requirements and need to adjust the values, this section offers a description of the TCP parameters, found in member TCPCFGxx.

Most users will not need to specify a TCP statement. The TCP statement is most often modified to change port number assignments. Some users may encounter TCP implementations that will not tolerate attempts to use window scaling. Set Scale (0) to suppress window scaling and, with it, timestamps.

```
TCP [CONNECT (time)]  
    [DELAYACK (number time)]  
    [DEFQRCV (number)]  
    [DEFQSND (number)]  
    [DEFRCVBUF (number)]  
    [DEFSNDBUF (number)]  
    [FASTRX (number)]  
    [FWIDLE (number)]  
    [HASH (number)]
```

[IPNOTIFY (*number*)]
 [KEEPALIVE (GARBAGE | NOGARBAGE)]
 [KEEPALIVECOUNT (*number*)]
 [KEEPALIVETIMER (*number*)]
 [MAXQLSTN (*number*)]
 [MAXQRECV (*number*)]
 [MAXQSEND (*number*)]
 [MAXRCVBUF (*number*)]
 [MAXRXMIT (*number*)]
 [MAXRXTIME (*number*)]
 [MAXSNDBUF (*number*)]
 [MAXTRECV (*number*)]
 [MAXTSEND (*number*)]
 [MINDEV (*number*)]
 [MINRXTIME (*number*)]
 [PORTASGN (*n1[:m1] [n2:[m2]]...*)]
 [PORTUSE (*n1[:m1] [n2:[m2]]...*)]
 [RTD (*time*)]
 [RTO (*time*)]
 [SCALE (*number*)]
 [TIMEWAIT (*time*)]

Syntax Description

CONNECT (<i>time</i>)	Specifies the timeout period, in 0.01 second units, for trying to connect to a remote host. Range: Minimum (RTD*4)+RTO; maximum: 360000 (1 hour) Default: 7500 (75 seconds)
DEFQRCV (<i>number</i>)	Specifies the default number of outstanding API TRECV or TRECVFR requests that can exist on an endpoint. Alias: DEFQRECV. Range: 1 to MAXQRECV Default: 4
DEFQSND (<i>number</i>)	Specifies the default number of outstanding API TSEND or TSENDTO requests that can exist on an endpoint. Alias: DEFQSEND. Range: 1 to MAXQSEND Default: 4

DEFRCVBUF (<i>number</i>)	<p>Specifies the default amount of receive buffer space for an endpoint or OpenEdition (UNIX System Services) socket. The value can range from 512 to 1,048,576. Aliases: DEFLRECV, DEFLRCV, DEFRCVBUF.</p> <p>For more information about UNIX System Services socket support, read the <i>Cisco IOS for S/390 C/Socket Programmer's Reference</i>.</p> <p>This is the size limit for the socket receive buffer. The size of the receive buffer can be set or reported with the SO_RCVBUF socket-level option.</p> <p>Range: 4096 to MAXRCVBUF</p> <p>Default: 65344</p>
DEFSNDBUF (<i>number</i>)	<p>Specifies the default amount of send buffer space for an endpoint or OpenEdition (UNIX System Services) socket. The value can range from 512 to 1,048,576. Aliases: DEFLSEND, DEFLSND, DEFSENDBUF.</p> <p>This is the size limit for the socket send buffer. The size of the send buffer can be set or reported with the SO_SNDBUF socket-level option. For more information about UNIX System Services socket support, read the <i>Cisco IOS for S/390 C/Socket Programmer's Reference</i>.</p> <p>Range: 4096 to MAXSNDBUF</p> <p>Default: 65344</p>
DELAYACK (<i>number time</i>)	<p>Specifies the number of packets to receive before sending an acknowledge packet and the maximum amount of time, in 0.01 second units, to wait before sending an acknowledgment packet. The TIMER parameter is set in the IFSPARM statement and specifies the time interval for a timer interrupt.</p> <p>Range: <i>number</i> 0 to 100</p> <p>Range: <i>time</i> value of TIMER keyword on IFSPARM statement in IJTCFG00 - 100</p> <p>Default: (2, value of TIMER keyword on IFSPARM statement in IJTCFG00)</p>
FASTRX (<i>number</i>)	<p>Specifies the number of duplicate acknowledged packets to receive before sending a fast retransmit of a packet. Specifying zero indicates not to use fast retransmit.</p> <p>Range: 0 to 256</p> <p>Default: 3</p>

FWIDLE (<i>number</i>)	<p>Specifies the amount of time a connection may remain idle after a TRELEASE request has been issued. This parameter can be used to time out TCP sessions that have started to close, but the remote end of the connection has not completed its part of the close. Specifying zero disables this timeout feature. The number is in units of 0.01 seconds.</p> <p>Range: 1500 to 8640000 (24 hours)</p> <p>Default: 60000 (10 minutes)</p>
HASH (<i>number</i>)	<p>Defines the number of entries for the TCP session lookup table. Larger numbers reduce the chain length of synonyms in the lookup table. For supporting a very large number of sessions, raising this number could reduce overhead matching datagrams to sessions.</p> <p>Range: 255 to 99999</p> <p>Default: 1021</p>
IPNOTIFY (<i>number</i>)	<p>Specifies the number of retransmits before notifying IP to obtain a new route, and notifying the drivers to attempt to re-invoke the ARP protocols in case the hardware address has changed.</p> <p>Range: 1 to MAXRXMIT</p> <p>Default: 4</p>
KEEPALIVE (GARBAGE NOGARBAGE)	<p>Specifies the type of keepalive packet to be sent. If an OpenEdition (UNIX System Services) sockets API user enables keepalive, this value is used. Alias: KEEPALIVETYPE.</p> <p>For more information about UNIX System Services socket support, read the <i>Cisco IOS for S/390 C/Socket Programmer's Reference</i>.</p> <p>The NOGARBAGE argument indicates that the TCP keepalive packets should be sent with no data. This value is usually appropriate as a remote TCP implementation should be able to handle and respond to this kind of packet, if properly implemented.</p> <p>The GARBAGE argument indicates that the keepalive packet should be sent with one byte of random data. This value is provided for compatibility with erroneous TCP implementations.</p> <p>Default: NOGARBAGE</p>
KEEPALIVECOUNT (<i>number</i>)	<p>Specifies the maximum number of keepalive packets that are sent before the connection is considered severed. Alias: KACOUNT.</p> <p>Range: 2 to 256</p> <p>Default: 9</p>
KEEPALIVETIMER (<i>number</i>)	<p>Specifies the time interval, in minutes, for TCP keepalive packets. If a sockets API user enables TCP keepalive without specifying a time interval between keepalive packets, this value is used. Alias: KATIMER.</p> <p>Range: 1 (1 minute) - 1439 (approx. 24 hours)</p> <p>Default: 120 minutes (2 hours)</p>

MAXQLSTN (<i>listen</i>)	<p>Specifies the maximum number of requests for connections or associations that can be queued to a bound and enabled API endpoint. Alias: MAXQLSTNvt.</p> <p>The <i>defqlstn</i> (default qlstn value) is determined in the following matter:</p> <ul style="list-style-type: none"> • If using BSD or OE sockets, <i>defqlstn</i> is set in the backlog parameter on the sockets listen() call. • If using the assembler API, <i>defqlstn</i> is set to the value in the QLSTN= parameter of the TBIND macro. <p>The MAXQLSTN is the largest <i>defqlstn</i> value supported on any of the above listen calls.</p> <p><i>defqlstn</i> values greater than MAXQLSTN are silently trimmed.</p> <p>Range: 1 to 255</p> <p>Default: 25</p>
MAXQRECV (<i>number</i>)	<p>Specifies the maximum number of API TRECVR or TRECVR requests that can be outstanding on an endpoint. Alias: MAXQRCV.</p> <p>Range: 1 to 256</p> <p>Default: 16</p>
MAXQSEND (<i>number</i>)	<p>Specifies the maximum number of API TSEND or TSENDTO requests that can be outstanding on an endpoint.</p> <p>Range 1 to 256</p> <p>Default: 16</p>
MAXRCVBUF (<i>number</i>)	<p>Specifies the maximum amount of receive buffer space for an endpoint or OpenEdition (UNIX System Services) socket. Aliases: MAXLRECV, MAXLRCV, MAXRCVBUF.</p> <p>For more information about UNIX System Services socket support, read the <i>Cisco IOS for S/390 C/Socket Programmer's Reference</i>.</p> <p>This is the size limit for the socket receive buffer. The size of the receive buffer can be set or reported with the SO_RCVBUF socket-level option.</p> <p>Range: 4096 to 1,048,576</p> <p>Default: 261376</p>
MAXRXMIT (<i>number</i>)	<p>Specifies the maximum number of retransmissions of a packet before breaking the session.</p> <p>Range: 1 to 255</p> <p>Default: 17</p>

MAXRXTIME (<i>number</i>)	<p>Specifies the maximum time in 0.01 second units, to set the retransmit timer to.</p> <p>Range: 100 (1 sec) to 6000 (1 minute)</p> <p>Default: 2000 (20 seconds)</p>
MAXSNDBUF (<i>number</i>)	<p>Specifies the maximum amount of send buffer space for an endpoint or OpenEdition (UNIX System Services) socket. Alias: MAXLSEND, MAXLSND, MAXSENDBUF.</p> <p>This is the size limit for the socket send buffer. The size of the send buffer can be set or reported with the SO_SNDBUF socket-level option. For more information about UNIX System Services socket support, read the <i>Cisco IOS for S/390 C/Socket Programmer's Reference</i>.</p> <p>Range: 4096 to 1,048,576</p> <p>Default: 261376</p>
MAXTREC V (<i>number</i>)	<p>Specifies the size of the largest TRECV which can be issued. It also controls the maximum size of a datagram which can be received or reassembled by the IP layer. For UDP and RAW type sockets, no datagram greater than this size will be accepted by the IP layer. The maximum value to which this can be set is 65535 for TCP, 65467 for UDP, and 65475 for RAW. This value does not directly control any function issued by an OpenEdition (UNIX System Services) socket. Aliases: MAXLTRCV, MAXLTRECV, MAXTRCV.</p> <p>Range: 512 to Lower of MAXRCVBUF or 262144</p> <p>Default: 16336.</p>
MAXTSEND (<i>number</i>)	<p>Specifies the size of the largest TSEND which can be issued. The maximum value to which this can be set is 65535 for TCP, 65467 for UDP, and 65475 for RAW. This value does not directly control any function issued by an OpenEdition (UNIX System Services) socket. Aliases: MAXLTSND, MAXLTSEND, MAXTSND.</p> <p>Range: 512 to Lower of MAXSNDBUF or 262144</p> <p>Default: 16336.</p>
MINDEV (<i>number</i>)	<p>Specifies the minimum time in 2.5 millisecond units to set the round trip time deviation. To set this parameter requires an understanding of Van Jacobson's RTT algorithm.</p> <p>Range: value of TIMER keyword on IFSPARM statement in IJTCFG00 (converted to units of 2.5 ms) to 1000</p> <p>Default: 40 (0.1 seconds)</p>

MINRXTIME (<i>number</i>)	<p>Specifies the interval, in 0.01 second units, to set the retransmit timer to. The TIMER parameter is set in the IFSPARM statement. It specifies the time interval for a timer interrupt.</p> <p>Range: minimum: Greater of IFSPARM TIMER or 25 maximum: MAXRXTIME</p> <p>Default: 100</p>
PORTASGN (<i>n1[:m1]</i> <i>[n2:[m2]]...</i>)	<p>Specifies the range(s) of port numbers from which a port is assigned when an API application issues a TADDR function with OPTCD=ASSIGN. This means some range must be specified for this assignment to work. Client services (VTAMAPPL, USMTP) require a range of assignable port numbers to run. The port numbers are specified as one or more ranges, from <i>n1</i> to <i>m1</i>, <i>n2</i> to <i>m2</i>, etc. A single number can be specified when a range is not desired. This keyword can also be specified as TADDRASGN, TADDRASSIGN, or PORTASSGN.</p> <p>Range: 1 to 65535</p> <p>Default: 4096: 65535</p>
PORTUSE (<i>n1[:m1]</i> <i>[n2:[m2]]...</i>)	<p>Specifies the range(s) of port numbers that are valid for an API application to use in a TADDR function with OPTCD=USE. This is normally how a server program initializes to listen for connection requests. This means any service statement in the configuration member must have a port in these ranges. Failure to include those port numbers in this parameter results in those services failing to run. The port numbers are specified as one or more ranges, from <i>n1</i> to <i>m1</i>, <i>n2</i> to <i>m2</i>, etc. A single number can be entered when a range is not desired.</p> <p>Alias: TADDRUSE.</p> <p>Range: 1 to 65535</p> <p>Default: 1: 4095</p>
RTD (<i>time</i>)	<p>Specifies the initial round trip deviation (RTD), in 0.01 second units, to use for a connection. Note that RTD and RTO combine to provide the initial timeout value for a connection. Alias: ROUNDTRIPDEV.</p> <p>Range: value of TIMER keyword on IFSPARM statement in IJTCFG00 - 6000 (1 minute)</p> <p>Default: 300 (3 seconds)</p>
RTO (<i>time</i>)	<p>Specifies the initial retransmission timeout value, in 0.01 second units, to use for a connection. Note that RTD and RTO combine to provide the initial timeout value for a connection. Alias: ROUNDTRIPINIT.</p> <p>Range: value of TIMER keyword on IFSPARM statement in IJTCFG00 - 6000 (1 minute)</p> <p>Default: Value of TIMER keyword on IFSPARM statement in IJTCFG00.</p>

SCALE (<i>number</i>)	Specifies the window scaling amount for applications that use expanded windows. This is described in RFC 1323. The window scaling option is not sent unless the window is greater than 65535 or the option has been received from the other side. Coding zero turns off window scaling and the use of timestamps. Range: 0 to 14 Default: 4
TIMEWAIT (<i>time</i>)	Specifies the amount of time, in 0.01 second units, a connection spends in the time wait state. Range: value of TIMER keyword on IFSPARM statement in IJTCFG00 - 180000 (30 minutes) Default: 1000 (10 seconds)

TCP Example

This example shows the use of the TCP statement to change the port ranges.

```
TCP PORTUSE (1:1023) PORTASSIGN (1024:8192)
```

Fine-tuning the User Datagram Protocol

For most sites, the default settings for the UDP statement do not need to be changed. If you have specific requirements and need to adjust the values, this section offers a description of the UDP parameters, found in member TCPCFGxx. It is recommended that you make changes to this statement only on the advice of Technical Support.

UDP Statement Syntax

```
UDP [CHECKSUM | NOCHECKSUM]
    [DEFQRCV (number)]
    [DEFQSND (number)]
    [DEFRCVBUF (number)]
    [DEFSNDBUF (number)]
    [MAXQLSTN (number)]
    [MAXQRCV (number)]
    [MAXQSEND (number)]
    [MAXRCVBUF (number)]
    [MAXSNDBUF (number)]
    [MAXTREC (number)]
    [MAXTSEND (number)]
    [PORTASGN (n1[:m1] [n2[:m2]]...)]
    [PORTUSE (n1[:m1] [n2[:m2]]...)]
```

Syntax Description

CHECKSUM NOCHECKSUM	Specifies whether or not to compute checksums on UDP datagrams sent by the host. Default: CHECKSUM
DEFQRCV (<i>number</i>)	Specifies the default number of outstanding API TRECVR or TRECVR requests that can exist on an endpoint. Alias: DEFQRCV. Default: 8 or MAXQRCV Range: 1 to MAXQRCV
DEFQSEND (<i>number</i>)	Specifies the default number of outstanding API TSEND or TSENDTO requests that can exist on an endpoint. Alias: DEFQSEND. Default: 8 or MAXQSEND Range: 1 to MAXQSEND
DEFRCVBUF (<i>number</i>)	Specifies the default size of the circular API receive buffer. This is the limit of the total amount of data that can be requested in all outstanding TRECVR or TRECVR requests. Aliases: DEFLRCV, DEFRCVBUF. Default: 72000 (or MAXRCVBUF)
DEFSNDBUF (<i>number</i>)	Specifies the default size of the circular API send buffer. This is the limit of the total amount of data that can exist for all outstanding TSEND or TSENDTO requests. Aliases: DEFLSEND, DEFSND, DEFSNDBUF. Range: 4096 to 144000 Default: 72000 (or MAXSNDBUF)
MAXQLSTN (<i>number</i>)	Specifies the maximum number of requests for connections or associations that can be queued to a bound and enabled API endpoint. Alias: MAXQLSTNvt. The <i>defqlstn</i> (default qlstn value) is determined in the following matter: <ul style="list-style-type: none">• If using BSD or OE sockets, <i>defqlstn</i> is set in the backlog parameter on the sockets listen() call.• If using the assembler API, <i>defqlstn</i> is set to the value in the QLSTN= parameter of the TBIND macro. The MAXQLSTN is the largest <i>defqlstn</i> value supported on any of the above listen calls. <i>defqlstn</i> values greater than MAXQLSTN are silently trimmed. Range: 1 to 255 Default: 25

MAXQRECV (<i>number</i>)	<p>Specifies the maximum number of API TRECVR or TRECVR requests that can be outstanding on an endpoint. Alias: MAXQRCV.</p> <p>Range: 1 to 16</p> <p>Default: 16</p>
MAXQSEND (<i>number</i>)	<p>Specifies the maximum number of API TSEND or TSENDTO requests that can be outstanding on an endpoint. Alias: MAXQSND.</p> <p>Range: 1 to 16</p> <p>Default: 16</p>
MAXRCVBUF (<i>number</i>)	<p>Specifies the maximum amount of receive buffer space for an endpoint or OpenEdition (UNIX System Services) socket. The value can range from 512 to 1,048,576. Aliases: MAXLRECV, MAXLRCV, MAXRCVBUF.</p> <p>For more information about UNIX System Services socket support, read the <i>Cisco IOS for S/390 C/Socket Programmer's Reference</i>.</p> <p>This is the size limit for the socket receive buffer. The size of the receive buffer can be set or reported with the SO_RCVBUF socket-level option.</p> <p>Range: 4096 to 1048576</p> <p>Default: 144000</p>
MAXSNDBUF (<i>number</i>)	<p>Specifies the maximum amount of send buffer space for an endpoint or OpenEdition (UNIX System Services) socket. The value can range from 512 to 1,048,576. Aliases: MAXLSEND, MAXLSND, MAXSENDBUF.</p> <p>This is the size limit for the socket send buffer. The size of the send buffer can be set or reported with the SO_SNDBUF socket-level option. For more information about UNIX System Services socket support, read the <i>Cisco IOS for S/390 C/Socket Programmer's Reference</i>.</p> <p>Range: 4096 to 1048576</p> <p>Default: 144000</p>
MAXTRECVR (<i>number</i>)	<p>Specifies the size of the largest TRECVR which can be issued. It also controls the maximum size of a datagram which can be received or reassembled by the IP layer. For UDP and RAW type sockets, no datagram greater than this size will be accepted by the IP layer. The maximum value to which this can be set is, 65467. This value does not directly control any function issued by an OpenEdition (UNIX System Services) socket. Aliases: MAXLTRCV, MAXLTRECVR, MAXTRCV.</p> <p>Range: 512 to 65467</p> <p>Default: 9000.</p>

MAXTSEND (*number*)

Specifies the size of the largest TSEND which can be issued. The maximum value to which this can be set is 65467. This value does not directly control any function issued by an OpenEdition (UNIX System Services) socket. Aliases: MAXLTSND, MAXLTSEND, MAXTSND.

Range: 512 to 65467

Default: 9000.

PORTASGN (*n1 [:m1]*
[n2: [m2]]...)

Specifies the range(s) of port numbers from which a port is assigned when an API application issues a TADDR function with OPTCD=ASSIGN. This means some range must be specified for this assignment to work. Client services (VTAMAPPL, USMTP) require a range of assignable port numbers to run. The port numbers are specified as one or more ranges, from n1 to m1, n2 to m2, etc. A single number can be specified when a range is not desired. This keyword can also be specified as TADDRASGN, TADDRASSIGN, or PORTASSGN.

Range: 1 to 65535

Default: 4096 to 65535

PORTUSE (*n1 [:m1]*
[n2: [m2]]...)

Specifies the range(s) of port numbers that are valid for an API application to use in a TADDR function with OPTCD=USE. This is normally how a server program initializes to listen for connection requests. This means any service statement in the configuration member must have a port in these ranges. Failure to include those port numbers in this parameter results in those services failing to run. The port numbers are specified as one or more ranges, from n1 to m1, n2 to m2, etc. A single number can be entered when a range is not desired. Alias: TADDRUSE.

Range: 1 to 65535

Default: 1 to 4095

UDP Examples

This example shows the usage of the UDP statement:

```
UDP PORTUSE (1:3000) PORTASGN (5000:10000)
```

Fine-tuning the RAW Protocol

Any IP protocol other than TCP or UDP is known as a RAW protocol. For most sites, the default settings for the RAW statement do not need to be changed. If you have specific requirements and need to adjust the values, this section offers a description of the RAW parameters, found in member TCPCFGxx. It is recommended that you make changes to this statement only on the advice of Technical Support.

RAW Statement Syntax

```

RAW [DEFQRCV (number)]
      [DEFQSND (number)]
      [DEFRCVBUF (number)]
      [DEFSNDBUF (number)]
      [MAXQRCV (number)]
      [MAXQSEND (number)]
      [MAXRCVBUF (number)]
      [MAXSNDBUF (number)]
      [MAXTRCV (number)]
      [MAXTSEND (number)]
      [RCVEXIT (exitname)]
      [SENDEXIT (exitname)]
    
```

Syntax Description

DEFQRCV (<i>number</i>)	<p>Specifies the default number of outstanding API TRECVC or TRECVCFR requests that can exist on an endpoint. Alias: DEFQRCVC.</p> <p>Default: 8 or MAXQSEND</p> <p>Range: 1to MAXQRCVC</p>
DEFQSND (<i>number</i>)	<p>Specifies the default number of outstanding API TSEND or TSENDTO requests that can exist on an endpoint. Alias: DEFQSEND.</p> <p>Default: 8 or MAXQRCVC</p> <p>Range: 1to MAXQSEND</p>
DEFRCVBUF (<i>number</i>)	<p>Specifies the default size of the circular API receive buffer. This is the limit of the total amount of data that can be requested in all outstanding TRECVC or TRECVCFR requests. Aliases: DEFLRECVC, DEFLRCVC, DEFRCVBUF.</p> <p>Default: 72000 (or MAXRCVBUF)</p>
DEFSNDBUF (<i>number</i>)	<p>Specifies the default size of the circular API send buffer. This is the limit of the total amount of data that can exist for all outstanding TSEND or TSENDTO requests. Aliases: DEFLSEND, DEFLSND, DEFSENDBUF.</p> <p>Default: 72000 (or MAXSNDBUF)</p>
MAXQRCVC (<i>number</i>)	<p>Specifies the maximum number of API TRECVC or TRECVCFR requests that can be outstanding on an endpoint. Alias: MAXQRCVC.</p> <p>Default: 16</p>

MAXQSEND (<i>number</i>)	<p>Specifies the maximum number of API TSEND or TSENDTO requests that can be outstanding on an endpoint. Alias: MAXQSND.</p> <p>Default: 16</p>
MAXRCVBUF (<i>number</i>)	<p>Specifies the maximum amount of receive buffer space for an endpoint or OpenEdition (UNIX System Services) socket. The value can range from 512 to 1,048,576. Aliases: MAXLRECV, MAXLRCV, MAXRECVBUF.</p> <p>For more information about UNIX System Services socket support, read the <i>Cisco IOS for S/390 C/Socket Programmer's Reference</i>.</p> <p>This is the size limit for the socket receive buffer. The size of the receive buffer can be set or reported with the SO_RCVBUF socket-level option.</p> <p>Range: 512 to 1048576</p> <p>Default: 144000</p>
MAXSNDBUF (<i>number</i>)	<p>Specifies the maximum amount of send buffer space for an endpoint or OpenEdition (UNIX System Services) socket. The value can range from 512 to 1,048,576. Aliases: MAXLSEND, MAXLSND, MAXSENDBUF.</p> <p>This is the size limit for the socket send buffer. The size of the send buffer can be set or reported with the SO_SNDBUF socket-level option. For more information about UNIX System Services socket support, read the <i>Cisco IOS for S/390 C/Socket Programmer's Reference</i>.</p> <p>Range: 512 to 1048576</p> <p>Default: 144000</p>
MAXTREC V (<i>number</i>)	<p>Specifies the size of the largest TRECV which can be issued. It also controls the maximum size of a datagram which can be received or reassembled by the IP layer. No datagram greater than this size will be accepted by the IP layer. The maximum value to which this can be set is 65475. This value does not directly control any function issued by an OpenEdition (UNIX System Services) socket. Aliases: MAXLTRECV, MAXLTRECV, MAXTRCV.</p> <p>Range: 512 to 65475</p> <p>Default: 9000.</p>
MAXTSEND (<i>number</i>)	<p>Specifies the size of the largest TSEND which can be issued. The maximum value to which this can be set is 65475. This value does not directly control any function issued by an OpenEdition (UNIX System Services) socket. Alias: MAXLTSND.</p> <p>Default: 9000.</p>

Fine-tuning the Internet Protocol

The IP statement controls the operation of the Internet layer.

For information about the IP routing statement, read Internet Route Configuration.

IP Statement

```
IP [FORWARD | NOFORWARD]
   [GATED (gated_config) | NOGATED]
   [REASSEMBLYTIMEOUT (timeout)]
   [TIMETOLIVE (number)]
   [TYPEOFSERVICE (number)]
```

Syntax Description

FORWARD | NOFORWARD

Specifies whether forwarding is allowed in a multihomed environment. If FWD is specified, hosts on one local interface can forward to hosts on another local interface.

Default: NOFORWARD

GATED(*gated_config*) | NOGATED

Specifies that the GateD routing protocol is to be used. The GateD configuration member is specified by *gated_config*

Default: NOGATED

REASSEMBLYTIMEOUT (*number*)

Specifies the number of seconds to allow datagram fragments to reassemble. Fragments which remain incomplete after this time are discarded.

Default: 30

Range: 1 to 120

TIMETOLIVE (*number*)

The parameters specify the IP Time To Live (TTL) used in packets sent by the high level protocols. TTL was intended to be a time limit specifying how many seconds a packet sent by a host can be used before a packet is considered expired by IP routers and gateways forwarding the packet. The value is more realistically viewed as the maximum number of IP routers or gateways the packet is allowed to traverse before being discarded. Allowable values are the decimal values 1 through 255.

Default: 30

TYPEOFSERVICE (*number*)

The TOS parameters specify the Internet protocol (IP) type of service (TOS) used in packets sent by the high level protocols. The TOS field is generally unused and is recommended by the Internet Host Requirements RFC to be set to zero (0) unless IP routing is being done based on the TOS field contents. Allowable values are the decimal values 0 through 255.

Routers that utilize Weighted Fair Queueing (WFQ) use IP TOS. IF WFQ is used in your network, a default TOS should be set.

To set TOS for an individual service, see Protocol Service Segment (SERVICE).

Default: 0

POOLDEF Settings

The POOLDEF statement is used to define pools of control blocks necessary to run the Cisco IOS for S/390. The pool definitions specify an initial amount, an expansion amount, and a minimum amount to limit contraction. You can adjust these numbers to minimize expansion and contraction and improve efficiency. Refer to Defining Control Block Pools (POOLDEF Statement) for more specific information.

