



Configuring Cisco C1100TG-A-48 or C1100TG-A-32 as a Terminal Server

It provides console level access to multiple Cisco devices for remote configuration and management.

The Cisco C1100TG-A-48 or C1100TG-A-32 modules are used to provide out of band connectivity to the console ports of other devices. On the Cisco C1100TG-A-48 or C1100TG-A-32 async modules, the interfaces are addressed as `interface async <slot/subslot/port>`.

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Prerequisites for Configuring Cisco C1100TG-A-48 or C1100TG-A-32 as a Terminal Server

You must have privileged EXEC access to the router's command line interface (CLI). For more information on using the command line and for understanding command modes, see [Using Cisco IOS Software](#).

For instructions on connecting a console to your router, refer to the documentation that accompanied your router, or refer to the [online documentation](#) for your equipment.

How to Configure Cisco C1100TG-A-48 or C1100TG-A-32 as a Terminal Server

Perform the following steps to configure. In the below mentioned configuration steps a basic terminal server function is configured using default parameters.

1. From privileged EXEC mode, enter the configure command.

```
router#configure terminal
```

Enter configuration commands, one per line. End with CNTL/Z.

2. `router(config)#ip vrf Mgmt-intf`

- !--- If not done already, create management vrf globally (in this example vrf Mgmt-intf)*
3. `router(config-vrf)#interface GigabitEthernet0`
 4. `router(config-if)#vrf forwarding Mgmt-intf`
!--- Assign interface GigabitEthernet0 to vrf Mgmt-intf
 5. `router(config-if)#ip address 10.75.163.95 255.255.255.0`
!--- Use a public IP address to ensure connectivity
 6. `router(config-if)#ip route vrf Mgmt-intf 0.0.0.0 0.0.0.0 10.75.163.1`
!--- configure correct route to gateway in vrf Mgmt-intf
 7. `router(config)#line 0/1/0`
!--- switch to Line configuration mode for asynchronous port configuration
 8. `router(config-line)#transport input all`
!--- Defines the protocols to use when connecting to a specific line of the device. In this case all protocols (default)
 9. `router(config-line)#no exec`
!--- Allow an outgoing connection only

Optional Parameters

`transport input all [databits] [parity] [speed]`

[databits]	Sets the number of data bits per character that are interpreted and generated by the router hardware.
[parity]	Sets terminal parity. Need to sync with device console.
[speed]	Sets the transmit and receive speeds. Need to sync with device console.

Verification and Troubleshooting

Use the following show commands for the verification:

```
router#show running-config
Building configuration...
...

!--- Lines omitted for brevity

ip vrf Mgmt-intf
!
!
interface GigabitEthernet0
 ip vrf forwarding Mgmt-intf
 ip address 10.75.163.95 255.255.255.0
```

```

!
ip route vrf Mgmt-intf 0.0.0.0 0.0.0.0 10.75.163.1
!
line 0/1/0
  transport input all
no exec
!
end

```

Command Summary

The following commands are explained:

- transport input
- databits
- parity
- speed

transport input

Defines the protocols that needs to be used when connecting to the terminal server.

transport input {all | lat | mop | nasi | none | pad | rlogin | ssh | telnet | udptn}

Syntax Description

all	All protocols
lat	DEC LAT protocol
mop	DEC MOP Remote Console Protocol
nasi	NASI protocol
none	No protocols
pad	X.3 PAD
rlogin	Unix rlogin protocol
ssh	TCP/IP SSH protocol
telnet	TCP/IP Telnet protocol
udptn	UDPTN async via UDP protocol

databits

Sets the number of data bits per character that are interpreted and generated by the router hardware. To restore the default value, use the **no** form of the command.

databits {5 | 6 | 7 | 8}

no databits

Syntax Description

5	Five data bits per character.
6	Six data bits per character.
7	Seven data bits per character.
8	Eight data bits per character (default).

Usage Guideline: You need to sync between Device Console line and Terminal Server TTY line.



Note Only 7 and 8 data bits work.

parity

Defines generation of a parity bit. To specify no parity, use the no form of this command.

parity {none | even | odd | space | mark}

no parity

Syntax Description

none	No parity (Default)
even	Even parity
odd	Odd parity
space	Space parity
mark	Mark parity

Usage Guideline: Need to sync between Device Console line and Terminal Server TTY line.

speed

Sets the transmit and receive speed.

Syntax Description

<0-4294967295>	Baud rate in bits per second (bps).
----------------	-------------------------------------

Default speed is 9600.

Usage Guideline: Need to sync between Device Console line and Terminal Server TTY line.

show line

Use **show line** command to check all the TTY line summary information. The output contains information about mapping between async interface and line number, the line speed, uses, noise and so on. The line that begins with the asterisk "*" indicates that the line is in use.

```

Router#show line
  Tty Line Typ      Tx/Rx    A Modem  Roty AccO AccI  Uses  Noise Overruns  Int
*    0      0 CTY          - -      - - -    0     0    0/0    -
  1      1 AUX      9600/9600 - -      - - -    0     0    0/0    -
* 0/1/0    2 TTY      9600/9600 - -      - - -    1     7    0/0    -
  0/1/1    3 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/2    4 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/3    5 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/4    6 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/5    7 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/6    8 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/7    9 TTY      9600/9600 - -      - - -    0     6    0/0    -
  0/1/8   10 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/9   11 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/10  12 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/11  13 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/12  14 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/13  15 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/14  16 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/15  17 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/16  18 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/17  19 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/18  20 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/19  21 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/20  22 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/21  23 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/22  24 TTY      9600/9600 - -      - - -    0     7    0/0    -
  0/1/23  25 TTY      9600/9600 - -      - - -    0     7    0/0    -
*   866   866 VTY          - -      - - -   19     0    0/0    -
*   867   867 VTY          - -      - - -   32     0    0/0    -
     868   868 VTY          - -      - - -   13     0    0/0    -
     869   869 VTY          - -      - - -    0     0    0/0    -
     870   870 VTY          - -      - - -    0     0    0/0    -
Line(s) not in async mode -or- with no hardware support:
26-865
    
```

You can also use **show line <line number>** command to get the TTY line detail information. It gives you the information about the configured or by default parameters on that TTY line.

```

Router#show line 2
  Tty Line Typ      Tx/Rx    A Modem  Roty AccO AccI  Uses  Noise Overruns  Int
* 0/1/0    2 TTY      9600/9600 - -      - - -    1     7    0/0    -

Line 0/1/0, Location: "", Type: "XTERM"
Length: 24 lines, Width: 117 columns
Baud rate (TX/RX) is 9600/9600, no parity, 2 stopbits, 8 databits
Status: Ready, Connected, Active
Capabilities: EXEC Suppressed
Modem state: Ready
Group codes:      0
Special Chars: Escape Hold Stop Start Disconnect Activation
                  ^^x none - - none
Timeouts:        Idle EXEC Idle Session Modem Answer Session Dispatch
                  never      never      none      not set
                  Idle Session Disconnect Warning
                  never
                  Login-sequence User Response
                  00:00:30
                  Autoselect Initial Wait
                  not set

Modem type is unknown.
Session limit is not set.
Time since activation: 00:24:46
Editing is enabled.
    
```

show interface

```

History is enabled, history size is 10.
DNS resolution in show commands is enabled
Full user help is disabled
Allowed input transports are lat pad telnet rlogin mop udptn nasi ssh acercon.
Allowed output transports are lat pad telnet rlogin mop nasi ssh.
Preferred transport is lat.
Shell: enabled
Shell trace: off
No output characters are padded
No special data dispatching characters

```

show interface

Use **show interface async** <slot/subslot/interface> command to get the async interface details including counters of input/output queue, rate, packets, bytes, and so on.

```

Router#show interfaces async 0/1/0
Async0/1/0 is up, line protocol is down
  Hardware is NIM-24A
  MTU 1500 bytes, BW 17 Kbit/sec, DLY 0 usec,
    reliability 25/255, txload 1/255, rxload 1/255
  Encapsulation ASYNC, loopback not set
  Keepalive not set
  Last input never, output 00:00:00, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/375/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/0 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    114 packets input, 12608 bytes, 0 no buffer
    Received 0 broadcasts (0 IP multicasts)
    0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    17 packets output, 17 bytes, 0 underruns
    0 output errors, 0 collisions, 1 interface resets
    0 unknown protocol drops
    0 output buffer failures, 0 output buffers swapped out

```

show tcp

Use **show tcp** <line number> command to get the tcp session detailed information including foreign host, connection state, Event Timers, datagrams counters, and so on.

```

Router#show tcp 2

tty0/1/0, virtual tty from host 10.75.157.51
Connection state is ESTAB, I/O status: 1, unread input bytes: 0
Connection is ECN Disabled, Minimum incoming TTL 0, Outgoing TTL 255
Local host: 10.75.163.116, Local port: 2002
Foreign host: 10.75.157.51, Foreign port: 17719
Connection tableid (VRF): 1
Maximum output segment queue size: 20

Enqueued packets for retransmit: 0, input: 0  mis-ordered: 0 (0 bytes)

Event Timers (current time is 0x11F2BAC0):
Timer           Starts      Wakeups          Next
Retrans         112         0                0x0
TimeWait        0           0                0x0

```

```
AckHold          15          2          0x0
SendWnd          0          0          0x0
KeepAlive        0          0          0x0
GiveUp           0          0          0x0
PmtuAger         0          0          0x0
DeadWait         0          0          0x0
Linger           0          0          0x0
ProcessQ         0          0          0x0

iss: 2183166457  snduna: 2183179079  sndnxt: 2183179079
irs: 334962581   rcvnxt: 334962632

sndwnd: 24656  scale:      0  maxrcvwnd: 4128
rcvwnd: 4078  scale:      0  delrcvwnd: 50

SRTT: 1000 ms, RTTO: 1003 ms, RTV: 3 ms, KRTT: 0 ms
minRTT: 1 ms, maxRTT: 1000 ms, ACK hold: 200 ms
uptime: 1919014 ms, Sent idletime: 1811238 ms, Receive idletime: 1811237 ms
Status Flags: passive open, active open
Option Flags: Retrans timeout
IP Precedence value : 0

Datagrams (max data segment is 536 bytes):
Rcvd: 125 (out of order: 0), with data: 14, total data bytes: 50
Sent: 114 (retransmit: 0, fastretransmit: 0, partialack: 0, Second Congestion: 0), with
data: 111, total data bytes: 12621

Packets received in fast path: 0, fast processed: 0, slow path: 0
fast lock acquisition failures: 0, slow path: 0
TCP Semaphore      0x7FC594004670  FREE
```

show tcp