

Interface and Line Numbers in Cisco 1800, 2800 and 3800 Series Routers

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Introduction

This document explains the interface numbering scheme used in Cisco 1800, Cisco 2800 and Cisco 3800 Series Routers. It also includes line numbering associated with async interfaces.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

The information in this document is based on these hardware versions:

- Cisco 1800 Series Routers
- Cisco 2800 Series Routers
- Cisco 3800 Series Routers

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

Change in Interface and Line Numbering Convention

Existing router platforms (earlier than Cisco 1800, Cisco 2800, and Cisco 3800) contain a limitation. In some situations, such as when you insert WIC(s) out of order, the configuration of one WIC interface can be lost or applied to another WIC interface.

Example: Assume that you have a serial WIC-2T in WIC slot 1 and WIC slot 0 is empty. The interfaces are named serial 0/0 and serial 0/1. If you insert another WIC-2T into slot 0, the new WIC interfaces are named serial 0/0 and serial 0/1. The old WIC interfaces become serial 0/2 and serial 0/3. Therefore, the old WIC interface configuration moves to the new WIC interfaces.

Refer to How Async Lines are Numbered in Cisco 3600 Series Routers for more information.

In order to overcome this limitation, Cisco 1800, Cisco 2800, and Cisco3800 series platforms now have a three-tiered interface numbering format (**slot/subslot/port**) for interfaces on WIC slots only.

Note: The slot information for the Cisco 3800 series is the same as the 2800/1800 interface and line numbering. See New Interface and Line Number Conventions for information on interface and line numbering.

New Interface and Line Number Conventions

This section describes the new conventions for interface and line numbering.

1. The interface numbering scheme is the same for async interfaces and non-async interfaces. To configure the line associated with an async interface, use the interface number to specify the async line.

For example, line 0/0/0 specifies the line associated with interface serial 0/0/0 on a WIC-2A/S in slot 0. Similarly, line 0/1/1 specifies the line associated with interface async 0/1/1 on a WIC-2AM in slot 1.

Note: This document uses the following words interchangeably:

- ◆ **Network-module-slot** and **slot**.
- ◆ **Interface-card-slot** and **subslot**.

2. Ports on network modules are numbered like this:

interface-number = network-module-slot/port

OR

interface-number = slot/port

3. Ports on interface cards (such as WICs, VWICs and HWICs) installed directly in chassis slots is given here:

interface-number = 0/interface-card-slot/port

OR

interface-number = 0/subslot/port

4. This numbering convention is used for ports on interface cards that are installed in network module slots:

interface-number = network-module-slot/interface-card-slot/port

OR

interface-number = slot/subslot/port

Note: The **slot/subslot/port** format only applies to WIC interfaces. Interfaces that are native to the network modules still use only the **slot/port** format. That is:

- ◆ **<interface-name> slot/port** is used whenever the interfaces are native on the network module.
 - ◆ **<interface-name> slot/subslot/port** is used whenever the interfaces are on the WIC slot of a network module (NM).
5. Here is an example for numbering when the motherboard slot number is always 0. The native interfaces on the motherboard are numbered like this:

- ◆ Fa0/0, Fa0/1 on Cisco 2811.
- ◆ Gi0/0, and Gi0/1 on Cisco 2821 and Cisco 2851.

The Motherboard WIC slots are numbered from 0 to 3. The number increments from right to left, and from bottom to top.

```
WIC 0 ports: <interface>0/0/0, <interface>0/0/1
WIC 1 ports: <interface>0/1/0, <interface>0/1/1
WIC 2 ports: <interface>0/2/0, <interface>0/2/1
WIC 3 ports: <interface>0/3/0, <interface>0/3/1
```

6. Slot numbers for other slots increase from bottom to top, then right to left. Subslot numbers and port numbers within a slot also increase from bottom to top, then right to left.

Examples

Interfaces native to an extension network module (ENM):

```
<interface>1/0, <interface>1/1
```

If the ENM carries WIC cards, the WIC slot numbers start from 0:

```
WIC 0 ports: <interface> 1/0/0, <interface> 1/0/1
WIC 1 ports: <interface> 1/1/0, <interface> 1/1/1
```

The extension voice module (EVM) slot analog interfaces are numbered from voice-port 2/0/0 to voice-port 2/0/23, following the NM-HDA convention.

Interface Numbering

This section lists the interface numbering details for Cisco routers.

Slot Number

Slot Type

Slot Numbering Range

Example¹

Onboard Ports

Fast Ethernet

0/0 and 0/1

```
interface fastethernet 0/0
```

Slot 0

HWIC/WIC/VWIC²

0/0/0 to 0/0/3

```
interface serial 0/0/0
```

```
line async 0/0/0
```

Slot 1

HWIC/WIC/VWIC²

0/1/0 to 0/1/3

```
interface serial 0/1/0
```

```
line async 0/1/0
```

¹ The interfaces listed here are examples only. Other possible interface types are not listed.

² VWICs are data-only in a Cisco 1841 router.

Slot Number

Slot Type

Interface Numbering Range

Onboard ports

Fast Ethernet

0/0 and 0/1

0

VIC / VWIC (voice only)²

0/0/0 to 0/0/3

1

HWIC / WIC / VIC / VWIC¹

0/1/0 to 0/1/3 (single-wide HWIC)

0/1/0 to 0/1/7 (double-wide HWIC)

2

WIC / VIC / VWIC¹

0/2/0 to 0/2/3

3

HWIC / WIC / VIC / VWIC¹

0/3/0 to 0/3/3 (single-wide HWIC)

0/3/0 to 0/3/7 (double-wide HWIC)

¹A VWIC in slots 1, 2, and 3 can operate in both data and voice mode; in slot 0, a VWIC can only operate in voice mode.

² **Slot 0** in 2801 can be configured for voice only; thus **PRI** configurations with VWIC is not possible. **Slot 0** can be configured for **CAS** signaling.

Port Location

Interface Numbering Scheme

Examples^{1, 2}

Built into the chassis front panel

Interface-type port

```
usb 0
usb 1
```

Built into the chassis rear panel

Interface-type **0** / port

```
interface fa 0/x
interface gi 0/x
```

In an interface card (HWIC, HWIC-D, WIC, VWIC, VIC) plugged directly into an HWIC slot in a chassis

Interface-type **0** / interface-card-slot³ / port

Note: Interface card slots built into the chassis are labeled HWIC slot-number on Cisco 2800 series routers.

```
interface serial 0/x/y
interface async 0/x/y

line 0/x/y
interface fa 0/x/y
```

```
voice-port 0/x/y
```

See footnote⁴

In an interface card (WIC, VWIC, VIC) plugged into a slot in a network module

Interface-type **1**⁵/ interface-card-slot / port

```
controller t1 1/x/y
voice-port 1/x/y
interface serial 1/x/y
interface async 1/x/y
line 1/x/y
```

See footnote⁴

Built into a network module (NME, NME-X, NMD, NME-XD)

Interface-type **1**⁵/ port

```
interface gi 1/x
interface serial 1/x
interface async 1/x
line 1/x
```

See footnote⁴

FXS or FXO port in an EVM

Interface-type **2**⁶/**0**⁷/ port

FXS/DID port numbers **0** to **7** are built into the EVM.

FXS/FXO port numbers **8** to **15** are in expansion module **0**.

FXS/FXO port numbers **16** to **23** are in expansion module **1**.

```
voice-port 2/0/x
```

Voice port in a BRI expansion module (internal slot) in an EVM

Interface-type **2**⁶/**0**⁷/ port

Port numbers are **8** to **11** in expansion module **0**.

Port numbers are **16** to **19** in expansion module **1**.

```
voice-port 2/0/x
```

BRI interface in a BRI expansion module (internal slot) in an EVM

Interface-type **2**⁶/ port Port numbers are **0** to **3** if one expansion module is installed. Port numbers are **0** to **7** if two expansion modules are installed.

```
interface bri 2/x
```

¹ Interface abbreviations: fa = Fast Ethernet; gi = Gigabit Ethernet; usb = universal serial bus; bri = ISDN basic rate interface.

² The interfaces listed here are examples only. Other possible interface types are not listed.

³ Interface card slot numbers for double-width (HWIC-D) slots are 1 and 3 only.

⁴ Specify the line number in the Cisco IOS CLI by using the interface number for the associated asynchronous serial interface.

⁵ "1" is the network module slot number in all Cisco 2800 series routers.

⁶ "2" is the EVM slot number in Cisco 2821 and Cisco 2851 routers.

Interface Numbering on Various Cisco Routers

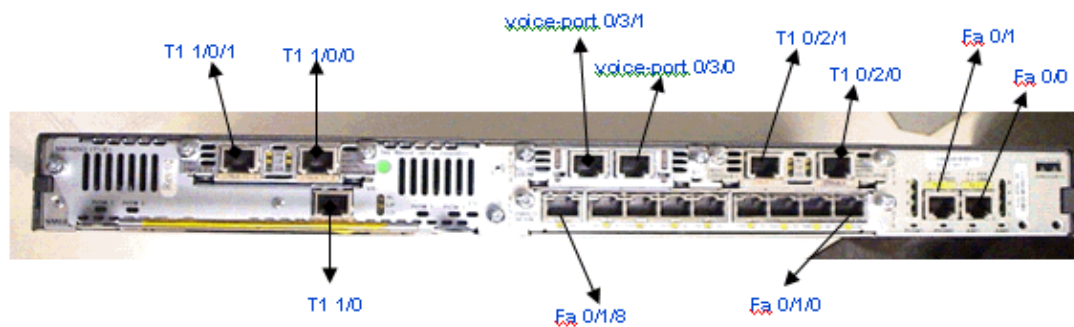
This section provides information on interface numbering on various platforms.

Cisco 2811 Platform

Figure 1 shows the interface numbering on Cisco 2811 platform with:

- HWICD-9FE in WIC slot 1.
- VWIC-2MFT-T1 in WIC slot 2.
- VIC2-2FXS in WIC slot 3.
- NM-HDV2-1T1/E1 which has 1 NATIVE T1/E1 port & VWIC-2MFT-T1 in its WIC slot 0.

Figure 1 Interface Numbering on Cisco 2811 Platform

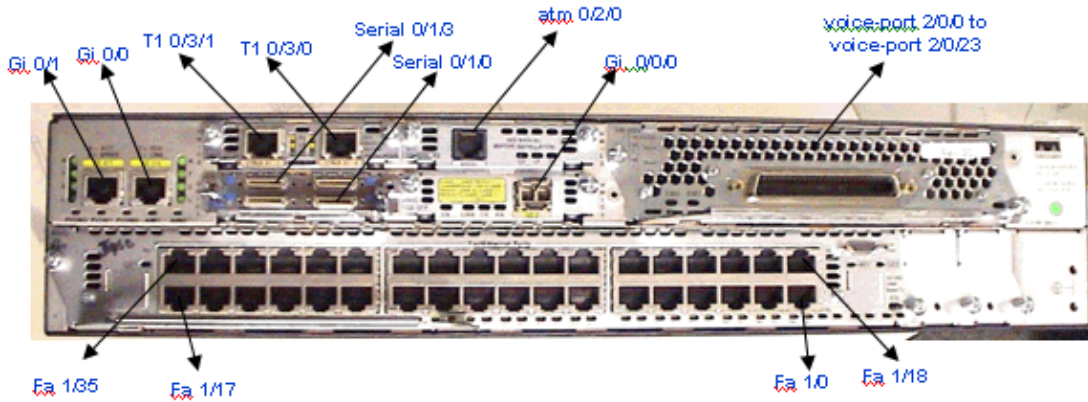


Cisco 2851 Platform

Figure 2 shows the interface numbering on Cisco 2851 platform with:

- HWIC-1GE in WIC slot 0.
- HWIC-4T in WIC slot 1.
- WIC-1SHDSL in WIC slot 2.
- VWIC-2MFT-T1 in WIC slot 3.
- NMD-36ESW in ENM slot 1 and EVM-HD-8FXS/DID in EVM slot.

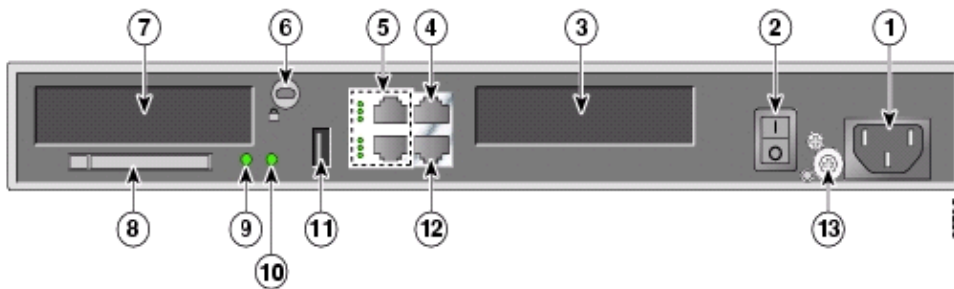
Figure 2 Interface Numbering on Cisco 2851 Platform



Slots on Cisco 1841, 2801, 2811, 2821, 2851 Routers

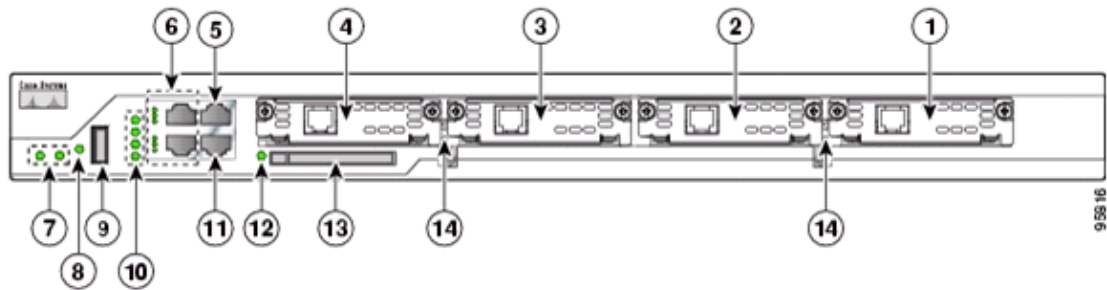
This section illustrates the positions of the various slots on Cisco 1841, 2801, 2811, 2821, 2851 routers.

Figure 3 Rear Panel of the Cisco 1841 Router



1	Input power connection	8	CompactFlash memory card slot
2	On/Off switch	9	CompactFlash (CF) LED
3	Slot 0 (WIC, VWIC data only, or HWIC)	10	AIM LED
4	Console port	11	USB port
5	Fast Ethernet ports and LEDs	12	Aux port
6	Kensington™ security slot	13	Chassis ground connection
7	Slot 1 (WIC, VWIC data only, or HWIC)		

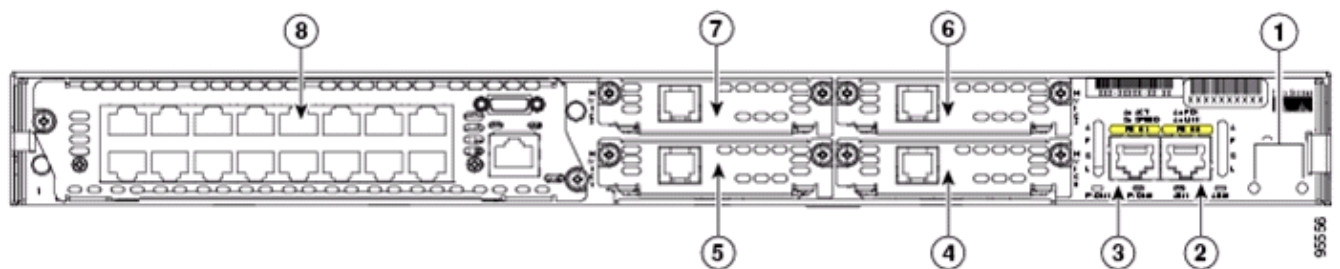
Figure 4 Front Panel of the Cisco 2801 Router



1	Slot 0 (VIC or VWIC, for voice only)	8	Auxiliary Power (AUX/PWR) LED
2	Slot 1 (WIC, VIC, VWIC, or HWIC)	9	Universal serial bus (USB) port
3	Slot 2 (WIC, VIC, or VWIC)	10	AIM/PVDM LEDs
4	Slot 3 (WIC, VIC, VWIC, or HWIC)	11	Auxiliary port
5	Console port	12	Compact flash (CF) LED
6	Fast Ethernet ports and LEDs	13	External CompactFlash memory card slot
7	System LEDs	14	Removable center card guides to allow double-wide HWIC-D installation

Note: Double-wide HWICs can go into slots 0 and 1 or slots 2 and 3.

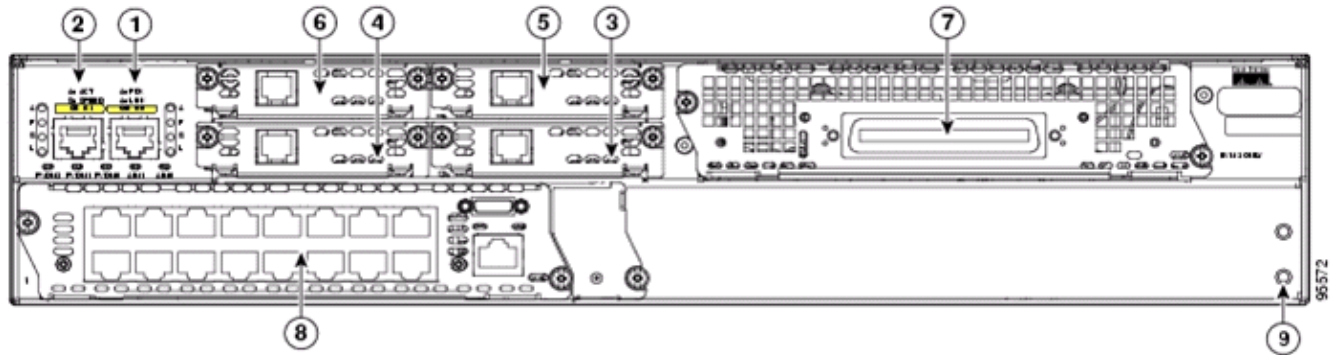
Figure 6 Rear Panel of Cisco 2811 Router



1	Screw holes for ground lug	5	High-speed WAN interface card slot 1
2	Fast Ethernet port 0/0	6	High-speed WAN interface card slot 2
3	Fast Ethernet port 0/1	7	High-speed WAN interface card slot 3
4	High-speed WAN interface card slot 0	8	NME slot ¹

¹ The network module slot is compatible with Cisco network modules of type NM (network module) and NME (network module enhanced).

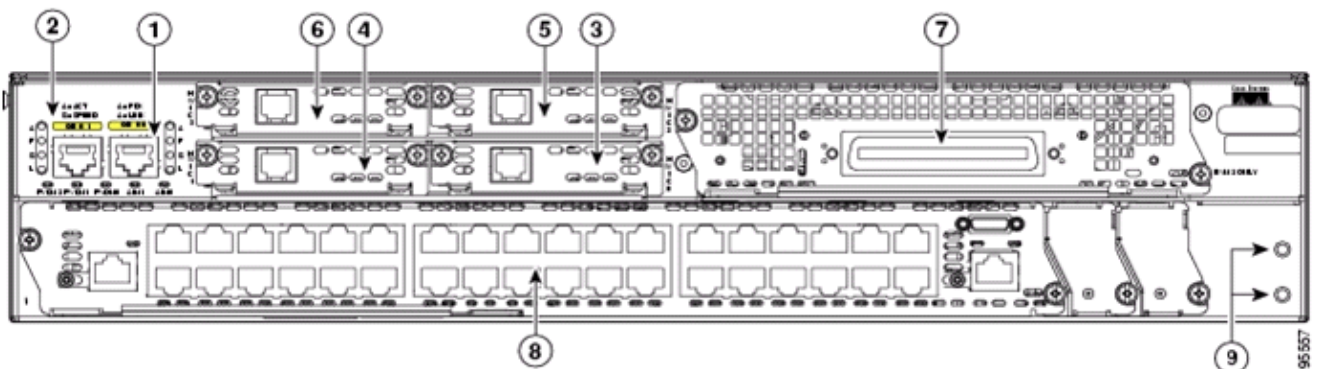
Figure 7 Rear Panel of the Cisco 2821 Router



1	Gigabit Ethernet port 0/0	6	High-speed WAN interface card slot 3
2	Gigabit Ethernet port 0/1	7	EVM slot ONLY
3	High-speed WAN interface card slot 0	8	NME slot ¹
4	High-speed WAN interface card slot 1	9	Screw holes for ground lug
5	High-speed WAN interface card slot 2		

¹ The network module slot is compatible with Cisco network modules of type NM, NME, and NME-X (enhanced extended).

Figure 8 – Rear Panel of the Cisco 2851 Router



1	Gigabit Ethernet port 0/0	6	High-speed WAN interface card slot 3
2	Gigabit Ethernet port 0/1	7	EVM slot ONLY
3	High-speed WAN interface card slot 0	8	NME slot ¹

4	High-speed WAN interface card slot 1	9	Screw holes for ground lug
5	High-speed WAN interface card slot 2		

¹ The network module slot is compatible with Cisco network modules of type NM, NME, NME-X, NMD (double-wide), and NME-XD (enhanced extended double-wide).

Note: When you look up commands in the Cisco IOS command references, note that:

- Commands for the 1700 apply to the 1800.
- Commands for the 2600 apply to the 2800.
- Commands for the 3700 apply to the 3800.

Line Numbering

To configure the line associated with an async interface, simply use the interface number to specify the async line.

Example 1

To configure port 22 of an NM-32A in network module slot 1, enter:

```
Router(config)# interface async 1/22
    (followed by configuring the async interface parameters)

Router(config-if)# exit
Router(config)# line 1/22
    (followed by configuring the line parameters)
Router(config-line)# end

Router# show line 1/22
  Tty Line Typ   Tx/Rx   A Modem  Roty AccO AccI  Uses  Noise Overruns  Int
  1/22  88 TTY   9600/9600 -   -      -   -   -   0      0      0/0    -
Line 1/22, Location: "", Type: ""

!--- The remaining output has been deleted.
```

Example 2

To configure port 0 of a WIC-2A/S in HWIC slot 3, enter:

```
Router(config)# interface serial 0/3/0
Router(config-if)# physical-layer async

!--- This command allows this line to appear in show line output.
!--- You can then configure the async interface parameters.

Router(config-if)# exit

Router(config)# line 0/3/0

!--- Followed by configuring the line parameters.

Router(config-line)# end

Router# show line 0/3/0
```

```

Tty Line Typ Tx/Rx A Modem Roty AccO AccI Uses Noise Overruns Int
0/3/0 50 TTY 9600/9600 - - - - - 0 0 0/0 Se0/3/0
Line 0/3/0, Location: "", Type: ""

```

!--- The remaining output has been deleted.

Example 3

When you use async interfaces, such as an NM-32A, the lines are listed as slot/num.

```

Router(config)#line 1/0 1/31
Router(config-line)#

```

And lines can be cleared in this format

```

Router#clear line ?
<0-326>      Line number
async-queue  Clear queued rotary async lines
aux          Auxiliary line
console      Primary terminal line
tty          Terminal controller
vty         Virtual terminal
x/y         Slot/Port for Modems
x/y/z       Slot/Subslot/Port for Modems

```

The **show line** command output is explained here:

- The "Tty" column displays the interface number (which is the same number we use to identify the line).
- The "Line" column displays the actual line number. The actual line number associated with each interface is determined by complicated equations that vary according to the hardware setup (such as a network module, interface card or interface card in a network module).

On these platforms, the line numbers have limited significance. The same can be used in the reverse telnet process. Ideally, rotary under the line configuration should be widely used for reverse telnet applications.

- For asynchronous or synchronous ports, such as those on the WIC-2A/S, NM-4A/S, NM-8A/S, and NM-16A/S, you must enter the **physical-layer async** command in serial interface configuration mode before the associated async line can appear in the **show line** command output (see Example 2).

```

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 -
0/3/0 50 TTY 9600/9600 - - - - - 0 0 0/0 Se0/3/0
0/3/1 51 TTY 9600/9600 - - - - - 0 1 0/0 Se0/3/1
1/0 66 TTY 9600/9600 - - - - - 0 0 0/0 -
1/1 67 TTY 9600/9600 - - - - - 0 0 0/0 -

1/29 95 TTY 9600/9600 - - - - - 0 0 0/0 -
1/30 96 TTY 9600/9600 - - - - - 0 0 0/0 -
1/31 97 TTY 9600/9600 - - - - - 0 0 0/0 -
322 322 VTY - - - - - 0 0 0/0 -
323 323 VTY - - - - - 0 0 0/0 -
324 324 VTY - - - - - 0 0 0/0 -
325 325 VTY - - - - - 0 0 0/0 -
326 326 VTY - - - - - 0 0 0/0 -

Tty Line Typ Tx/Rx A Modem Roty AccO AccI Uses Noise Overruns Int
Line(s) not in async mode -or- with no hardware support:

```

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