

ADTRAN Total Access 600 Series IADs

VoIP Software Configuration Guide

Software version D.04.07.20

1 Introduction

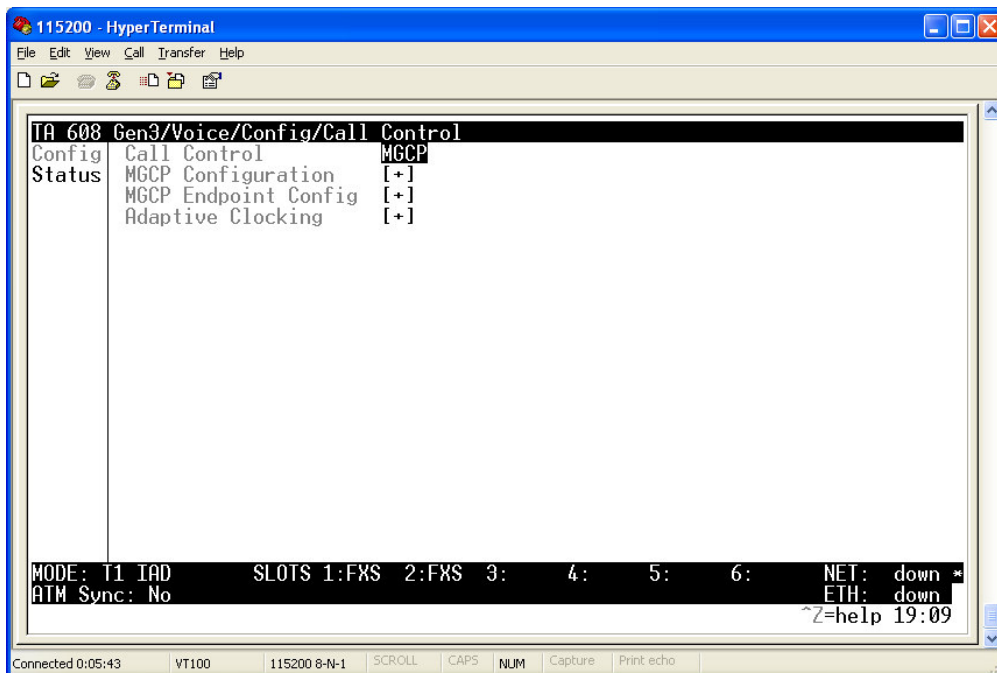
This document describes menu items in D.04.07.20 software and important configuration parameters for interoperating with various media gateway controllers, gateways and feature servers. For further configuration assistance, please consult the product CD or call ADTRAN technical support at 888-423-8726.

2 Modem / Fax Calls

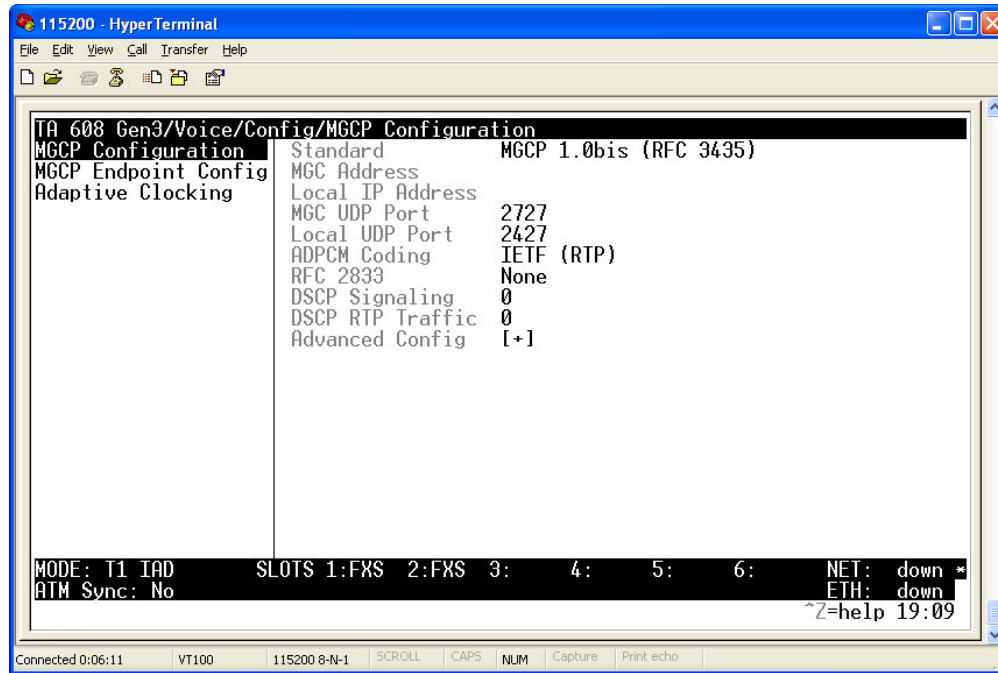
Modem and fax machines will operate with both ADPCM and PCM. Modem upspeed (i.e. dynamic compression) functionality is supported with Nuera, Metaswitch, and General Bandwidth. Other vendors do not currently support this feature.

3 Configuration and Supported Call Agents

The **MGCP Configuration** and **MGCP Endpoint Config** menus will appear once MGCP is selected as the call control.



Below is a screen capture of the **MGCP Configuration** menu. Descriptions for each of the parameters follow.



MGCP Configuration Menu Parameter Descriptions:

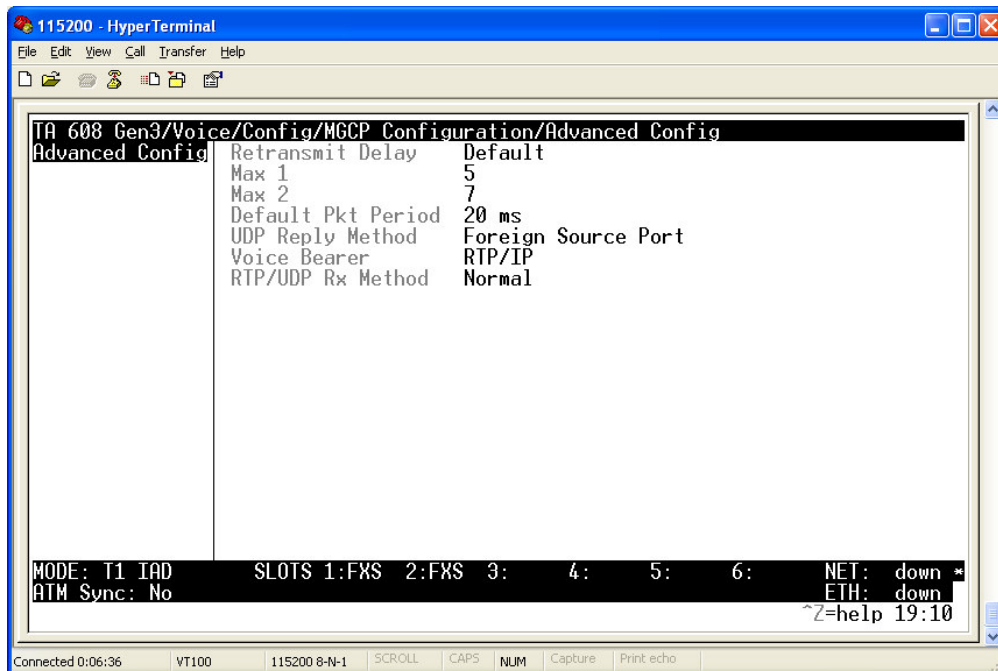
- | | |
|-----------------------|--|
| Standard | <i>MGCP 1.0bis (RFC3435)</i> - The latest MGCP standard
MGCP 0.1 / NCS 1.0 – Older version of MGCP or the PacketCable™ derivative |
| MGC Address | No default. Address of call agent. Fully Qualified Domain Name (FQDN) or IP address. |
| Local Address | No default. IAD's IP address. This should match interface address (PPP or Ethernet for example). This can be configured as an IP address or FQDN. |
| MGC UDP Port | The default is 2727. Destination Port when contacting Call Agent. |
| Local UDP Port | The default is 2427. The port on which the IAD listens for messages. |
| ADPCM Coding | <i>IETF (RTP) or ATM Forum</i> . IETF (RTP) is the default. This adjusts the nibble order for packing ADPCM bytes. The ATM-Forum setting is required for both BroadSoft and Nuera. |
| RFC 2833 | The default is <i>None</i> since most VoIP implementations do not care about ABCD signaling. Other options include "RTP Payload Type 94" (supported for Lucent iMerge) and "RTP Payload Type 127" (supported for Nuera RDT-8). |

DSCP Signaling This decimal value represents the upper 6 bits of the IP ToS for call control messaging.

DSCP RTP Traffic This decimal value represents the upper 6 bits of the IP ToS for RTP voice payloads. This setting will be ignored if the call agent provides non-zero value for the DSCP.

Advanced Config See below.

The **MGCP Configuration** menu contains a sub-menu entitled **Advanced Config**. The **Advanced Config** menu is shown in the screen capture below. Descriptions for each of its parameters follow.



Advanced Config Menu Parameter Descriptions:

Retransmit Delay The time between retransmissions of MGCP messages. The default uses the algorithm described in RFC 3435. Available delay times include 100ms, 250ms, 500ms, 1 sec, 2 sec and 4 sec.

Max 1 The number of retransmissions allowed before attempting alternate MGC addresses. The default is 5 “Suspicion threshold” as defined in RFC 3435.

Max 2 The number of retransmissions before an endpoint becomes disconnected from the call agent. *Max 2* must always be larger than *Max 1*. The default is 7 “Disconnection threshold” as defined in RFC 3435.

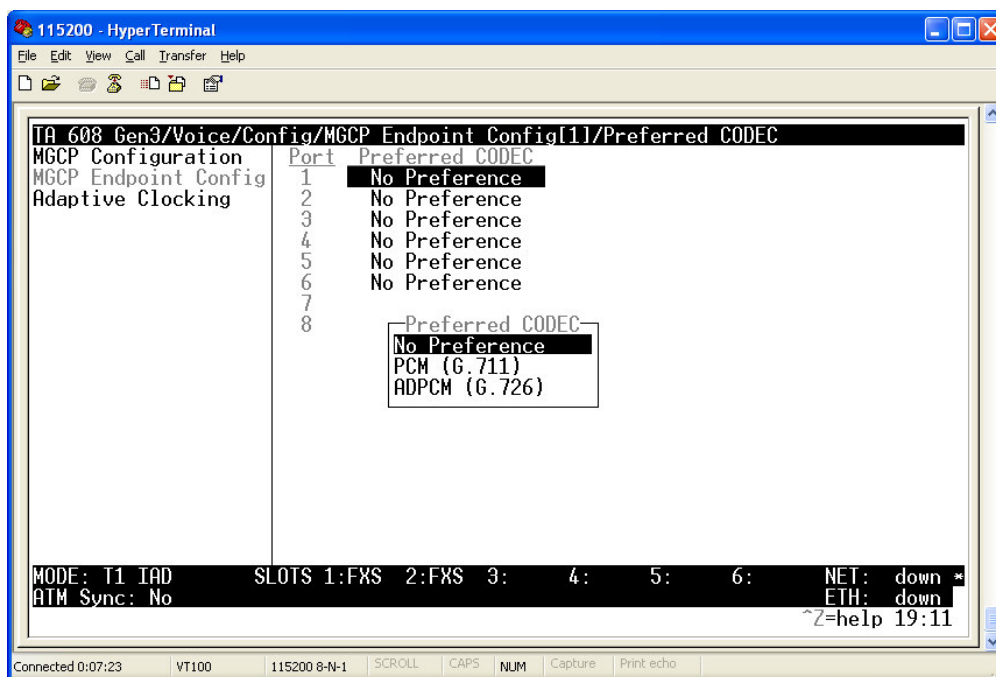
Default Pkt Period In the event that the call agent does not provide a packetization period, the IAD will default to the selected value. Values include 10ms, 20ms and 30ms. The default value is 20ms. **Note:** If a packetization period is provided by the call agent, the IAD will always use the call agent provided value.

UDP Reply Method The default selection is *Foreign Source Port*. This parameter should not be changed. This parameter was added for a very specific custom application.

Voice Bearer The default selection is *RTP/IP* (RFC 3550). Most VoIP applications use RTP/IP (RFC 3550) as the media transport. However, the Total Access 600 series IADs can also support ATM/AAL2 media transport (RFC 3081) under MGCP control. It is not likely that this parameter will need to be changed.

RTP/UDP Rx Method The default selection is *Normal*. In 'Normal' mode, the RTP receive process will match incoming packets with the UDP port and IP address of active connections before accepting the packet. In 'Promiscuous' mode, only the IP address will be verified. Broadsoft is currently the only vendor that requires 'Promiscuous' mode.

The **MGCP Endpoint Config** menu contains configuration options for every analog port on the Total Access 6xx IAD. This menu allows the user to select a preferred CODEC on a port by port basis. There are three options available: *No Preference*, *PCM (G.711)*, *ADPCM (G.726)*. This allows the user to override the call agent's preference and attempt to negotiate the IAD's preferred CODEC.



4 Supported Call Agents and Configuration Matrix

Total Access 600 Series IADs are currently interoperable with the following Media Gateway Controllers, Feature Servers and Gateways:

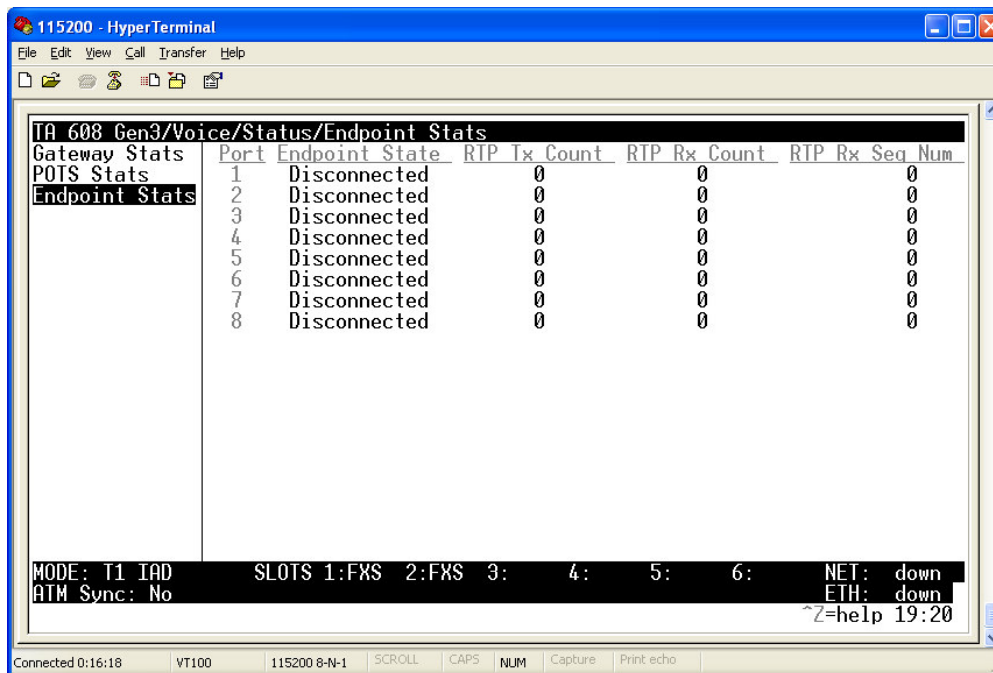
- Asterisk
- BroadSoft BroadWorks
- Cisco AS5300 Series Media Gateway
- Cisco BTS Softswitch
- Cisco MGX 8000 Series
- General Bandwidth G6
- Lucent iMerge
- Metaswitch VP3500
- Nuera RDT-8
- Sylanro Applications Feature Server
- Telica Plexus 9000

Configuration Parameters for Various Call Agents, Gateways and Feature Servers:

	Standard	MGC Port	MG Port	RFC 2833	Bearer	ADPCM	RTP/UDP Rx Method
Metaswitch	MGCP 1.0	2727	2427	None	RTP	IETF	Normal
Nuera	NCS	2427	2427	Type 127	RTP	ATM	Normal
GenBand	NCS	2427	2427	none	RTP	IETF	Normal
BroadSoft	MGCP 1.0	2727	2427	none	RTP	ATM	Promiscuous
VocalData	MGCP 1.0	2427	2727	none	RTP	IETF	Normal
Lucent	MGCP 1.0	2727	2427	Type 94	RTP	TBD	Normal
Cisco BTS	MGCP 1.0	2727	2427	none	RTP	TBD	Normal
Sylanro	MGCP 1.0	2727	2427	none	RTP	TBD	Normal
Asterisk	MGCP 1.0	2727	2427	none	RTP	TBD	Normal
Telica	MGCP 1.0	2727	2427	none	RTP	IETF	Normal

5 Status Screens

The Total Access IADs contain numerous screens that allow the user to see the current status of various events. Below is an example of the **MGCP Endpoint Statistics** menu.



The screenshot shows a HyperTerminal window titled "115200 - HyperTerminal". The main display area shows a menu with the following items: "TA 608 Gen3/Voice/Status/Endpoint Stats", "Gateway Stats", "POTS Stats", and "Endpoint Stats" (which is highlighted). Below the menu is a table with the following data:

Port	Endpoint State	RTP Tx Count	RTP Rx Count	RTP Rx Seq Num
1	Disconnected	0	0	0
2	Disconnected	0	0	0
3	Disconnected	0	0	0
4	Disconnected	0	0	0
5	Disconnected	0	0	0
6	Disconnected	0	0	0
7	Disconnected	0	0	0
8	Disconnected	0	0	0

At the bottom of the window, there is a status bar with the following text: "MODE: T1 IAD SLOTS 1:FXS 2:FXS 3: 4: 5: 6: NET: down ETH: down ^Z=help 19:20".

Endpoint Stat "Disconnected" – the endpoint has not verified connection with the call agent.
"Restarting" – The endpoint is sending "rsip" messages and is waiting for a response from the call agent.
"Connected" – the endpoint has been acknowledged by the call agent.

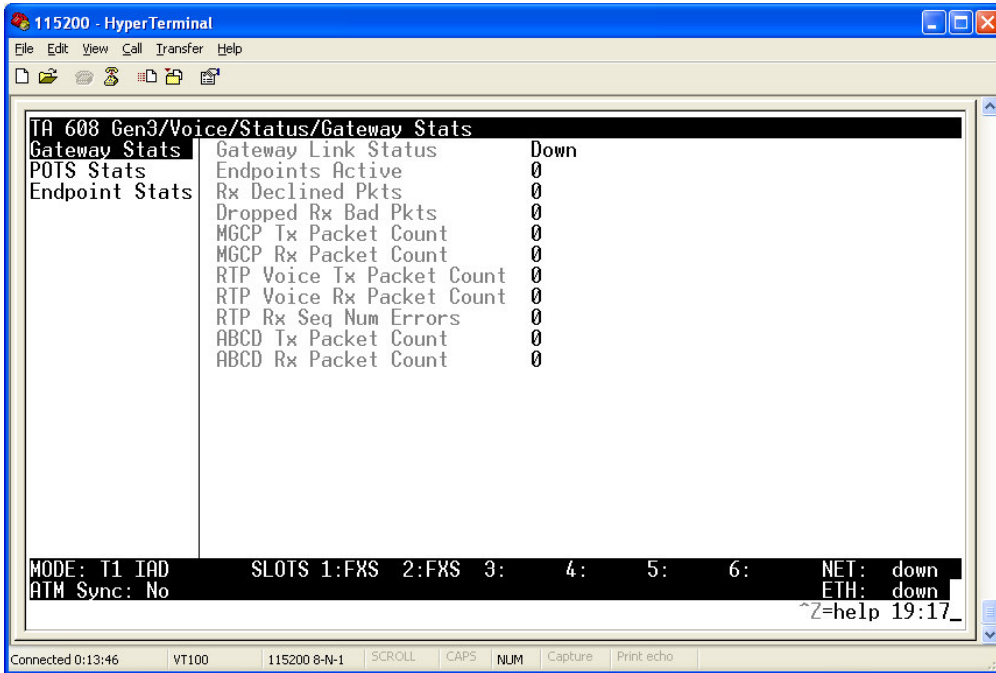
RTP Tx Count The number of RTP packets transmitted

RTP Rx Count The number of RTP packets received

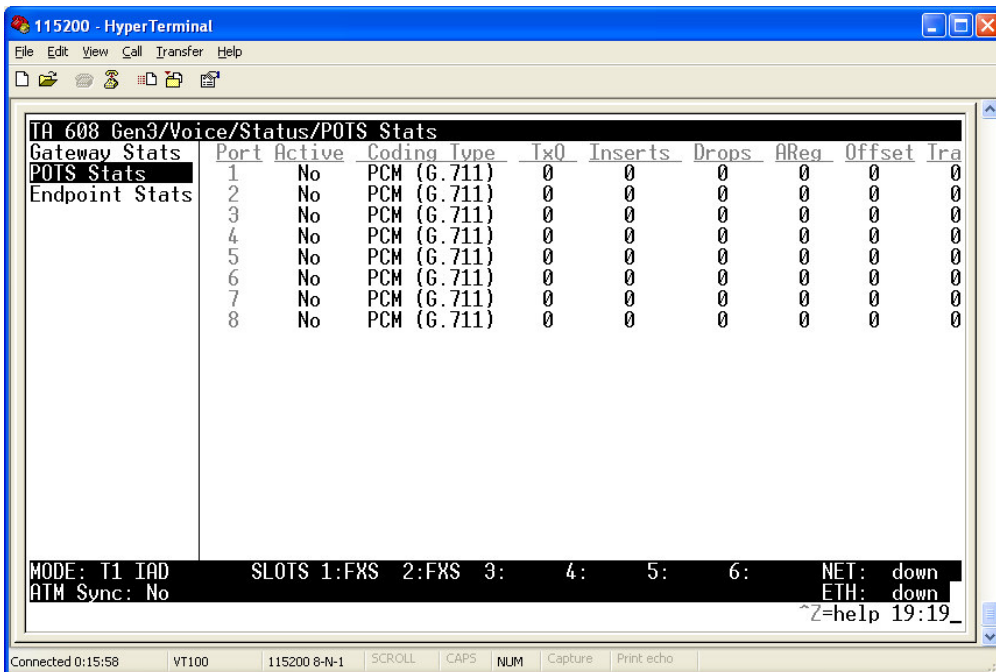
RTP Rx Seq Num Errs RTP Packets arriving with an unexpected sequence number

Other status screens are shown below.

Gateway Stats screen:

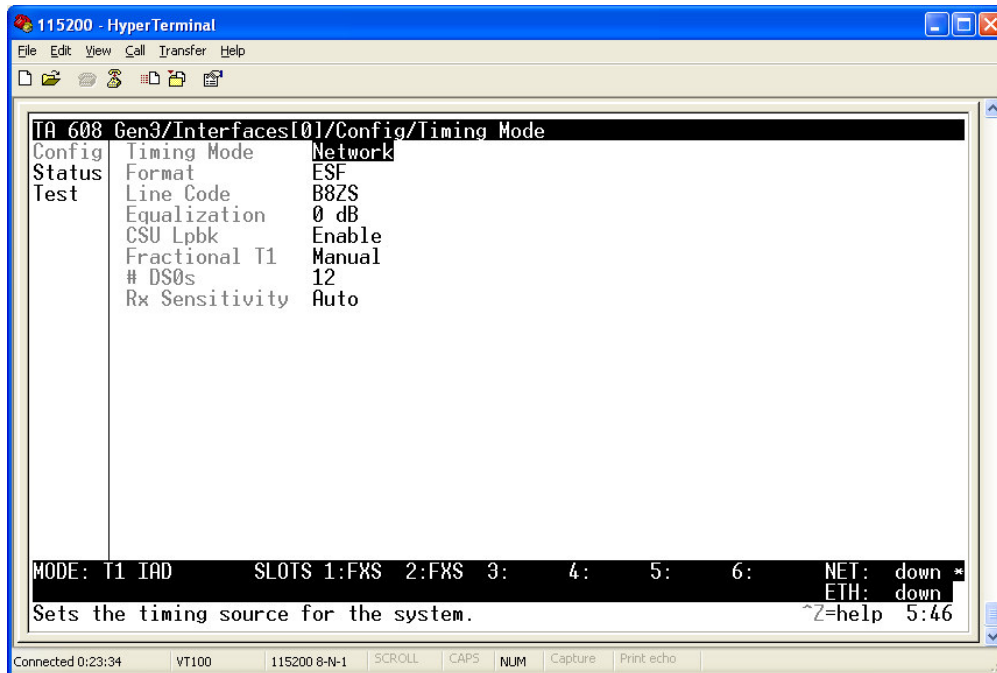


POTS Stats screen:



6 Fractional T1 Support Configuration Screen

The T1 versions of the Total Access 600 series IADs have the ability to limit bandwidth at the physical layer. Fractional T1 circuits can be used with the IAD by configuring the total number of DS0s in the T1/Config section of the **Interfaces** menu as shown below:



A minimum of 12 DS0's must be configured in order to ensure proper QoS for voice traffic when using PPP as the layer 2 protocol. No such restriction is imposed when using ATM as the layer 2 protocol. This restriction will be removed once packet fragmentation and interleaving are supported.

To configure the IAD for fractional T1 operation, set the **Fractional T1** configuration parameter to *Manual*. Another menu item will appear to allow the user to configure the number of DS0's in the fractional T1 circuit. Traffic begins at the first DS0 on the T1.

Fractional T1 "Disable" – The IAD uses the full T1.
"Manual" – Allows the user to enter the number of DS0's used in the fractional T1 circuit.

DS0's The number of DS0's used in the fractional T1 circuit. The fractional T1 circuit begins at DS0 1. 12 is the minimum value when using PPP as the layer 2 protocol. No such restriction is imposed when using ATM as the layer 2 protocol.