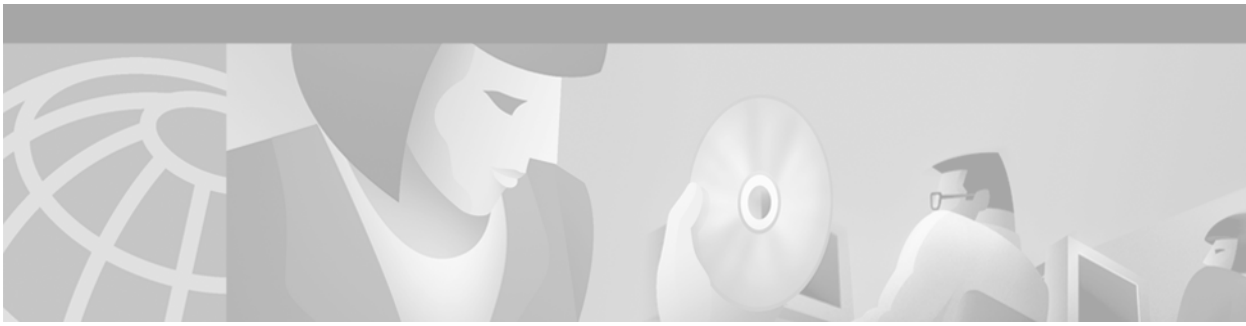

PIAFS Wireless Data Protocol for MICA Modems

This feature module describes the support of Personal Handyphone Internet Access Forum Standard (PIAFS) feature on MICA modems for the Cisco AS5300 and Cisco AS5800 universal access server. It includes information on the benefits of the new feature, supported platforms, related documents, and more. PIAFS is used in Personal Handyphone Systems cellular networks.

This document includes the following sections:

Feature Overview

The Personal Handyphone System Internet Access Forum Standard (PIAFS) specifications specifies a transmission system that uses the PHS' 64000 bps/32000 bps unrestricted digital bearer.

The PIAFS TA (terminal adapter) module is similar to a modem or a V.110 module in the following ways:

- Ports act as a pool of resources.
- Calls use the same call setup Q.931 message.
- Module supports a subset of common AT commands.
- Call setup and teardown are similar.

However, the rate negotiation information is part of the bearer cap and not the lower-layer compatibility. PIAFS calls have the user rate as 32000 and 64000; this is used to distinguish a PIAFS call from a V.110 call. Also, PIAFS uses only up to octets 5a in a call setup message. The data format defaults to 8N1 for PIAFS calls.

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Benefits

PIAFS Support

The Personal Handyphone (PHS) 64,000 bps / 32,000 bps unrestricted digital bearer is supported on MICA modems for the Cisco AS5300 and Cisco AS5800 universal access servers.

Restrictions

- Resource services must be used only with MICA modems.
- Modem pooling and resource pool management are not compatible.
- The resource pool management application requires the NPE 300 processor when using the Cisco AS5800 universal access server.

Supported Platforms

- Cisco AS5300 universal access server
- Cisco AS5800 universal access server

Supported Standards, MIBs, and RFCs

Standards

No new or modified standards are supported by this feature.

MIBs

- CISCO-MODEM-MGMT-MIB
- CISCO-CALL-RESOURCE-POOL-MIB

To obtain lists of MIBs supported by platform and Cisco IOS release and to download MIB modules, go to the Cisco MIB web site on Cisco Connection Online (CCO) at http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml.

RFCs

No new or modified RFCs are supported by this feature.

Prerequisites

- You must have portware version 8.2.1.0 or higher installed.
- For the Cisco AS5300 universal access server, you must be running Cisco IOS Release 12.0(4)XI1 or later.
- A minimum of 64 MB must be available on the DMM cards.

See "*Configuring the NAS for Basic Dial Access*" for more information: http://www.cisco.com/univercd/cc/td/doc/cisintwk/intsolns/vpn_soln/l2fcase/l2ftask1.htm.

Configuration Tasks

See the following sections for configuration tasks for the PIAFS feature.

- Configuring PIAFS (Required)
- Configuring Resource-pool Group Resource (Optional)

Note When configuring a voice port use the following configuration designations:
For the Cisco AS5300 access server, port designation is *port*.
For the Cisco AS5800 access server, port designation is *shelf/slot/port*.

Configuring PIAFS

	Command	Purpose
Step 1	`Router(config)# interface serial controller:channel`	Enters interface configuration mode for a D-channel serial interface.
Step 2	`Router(config-if)# isdn piafs-enabled`	Enables the PRI to take PIAFS calls on MICA modems.
Step 3	`Router(config-if)# exit`	Exits interface configuration mode.

Verifying PIAFS

Enter the **show modem operational-status** *slot/port* command to view PIAFS call information.

```
Router# show modem op 1/32
Modem(1/32) Operational-Status:

 Parameter #0  Disconnect Reason Info:  (0x5F03)
       Type (=2 ):  Other conditions
      Class (=31):  Requested by host
     Reason (=3 ):  DTR dropped
 Parameter #1  Connect Protocol:  (n/a)
 Parameter #2  Compression:  (n/a)
 Parameter #3  EC Retransmission Count:  (n/a)
 Parameter #4  Self Test Error Count:  (n/a)
 Parameter #5  Call Timer:  0 secs
 Parameter #6  Total Retrains:  (n/a)
 Parameter #7  Sq Value:  (n/a)
 Parameter #8  Connected Standard:  (n/a)
 Parameter #9  TX,RX Bit Rate:  (n/a)
 Parameter #11 TX,RX Symbol Rate:  (n/a)
 Parameter #13 TX,RX Carrier Frequency:  (n/a)
 Parameter #15 TX,RX Trellis Coding:  (n/a)
 Parameter #16 TX,RX Preemphasis Index:  (n/a)
 Parameter #17 TX,RX Constellation Shaping:  (n/a)
 Parameter #18 TX,RX Nonlinear Encoding:  (n/a)
 Parameter #19 TX,RX Precoding:  (n/a)
 Parameter #20 TX,RX Xmit Level Reduction:  (n/a)
 Parameter #21 Signal Noise Ratio:  (n/a)
 Parameter #22 Receive Level:  (n/a)
 Parameter #23 Frequency Offset:  (n/a)
 Parameter #24 Phase Jitter Frequency:  (n/a)
 Parameter #25 Phase Jitter Level:  (n/a)
 Parameter #26 Far End Echo Level:  (n/a)
 Parameter #27 Phase Roll:  (n/a)
 Parameter #28 Round Trip Delay:  (n/a)
 Parameter #30 Characters transmitted, received:  (n/a)
 Parameter #32 Characters received BAD:  (n/a)
 Parameter #33 PPP/SLIP packets transmitted, received:  (n/a)
 Parameter #35 PPP/SLIP packets received (BAD/ABORTED):  (n/a)
 Parameter #36 EC packets transmitted, received OK:  (n/a)
 Parameter #38 EC packets (Received BAD/ABORTED):  (n/a)
 Parameter #39 Robbed Bit Signalling (RBS) pattern:  (n/a)
 Parameter #40 Digital Pad:  (n/a)
 Parameter #41 V110 frames received bad:  (n/a)
 Parameter #42 V110 frames received good:  (n/a)
 Parameter #43 V110 frames transmitted:  (n/a)
 Parameter #44 V110 sync lost:  (n/a)
```

Configuring Resource-pool Group Resource

	Command	Purpose
Step 1	`Router(config)# resource-pool group resource piafs`	Creates a resource group (piafs) for resource management.
Step 2	`Router(config-resourc)# exit`	Exits configuration mode.

Verifying Resource-pool Group Resource

Step 1 Enter the **show resource-pool group resource piafs** command to view resource-pool group resource information.

```
Router# show resource-pool resource piafs
0 resources in the resource group
0 resources currently active
0 calls accepted in the resource group
0 calls rejected due to resource unavailable
0 calls rejected due to resource allocation errors
never since last clear command
```

Configuration Example

PIAFS and Resource-pool group Configuration Example

The output following displays the result of using the **show running-config** command.

```
version 12.1
service timestamps debug datetime msec localtime show-timezone
service timestamps log datetime msec localtime show-timezone
service password-encryption
!
hostname travis-nas-01
!
aaa new-model
aaa authentication login default local
aaa authentication login NO_AUTHENT none
aaa authorization exec default local if-authenticated
aaa authorization exec NO_AUTHOR none
aaa authorization commands 15 default local if-authenticated
aaa authorization commands 15 NO_AUTHOR none
aaa accounting exec default start-stop group tacacs+
aaa accounting exec NO_ACCOUNT none
aaa accounting commands 15 default stop-only group tacacs+
aaa accounting commands 15 NO_ACCOUNT none
enable secret 5 $1$LsoW$K/qBH9Ih2WstUxvazDgmY/
!
username admin privilege 15 password 7 06455E365E471D1C17
username gmcmilla password 7 071824404D06140044
username krist privilege 15 password 7 0832454D01181118
!
!
!
!
call rsvp-sync
shelf-id 0 router-shelf
shelf-id 1 dial-shelf
!
!
!
resource-pool disable
!
resource-pool group resource piafs
```

Command Reference

This section documents modified command. All other commands used with this feature are documented in the Cisco IOS Release 12.2 command reference publications.

- isdn piafs-enabled

isdn piafs-enabled

To enable the PRI to take PIAFS (Personal Handyphone Internet Access Forum Standard) calls on MICA modems, use the **isdn piafs-enabled** interface configuration command. To disable, use the **no** form of this command.

isdn piafs-enabled

no isdn piafs-enabled

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

Interface configuration.

Command History

Release	Modification
12.1(2)XH	This command was introduced on the Cisco AS5300 universal access server.
12.1(5)T	Support for the Cisco AS5800 universal access server was added.

Examples

The following example enables the PRI to take PIAFS calls:

```
Router(config)# interface serial 0:23
Router(config-if)# isdn piafs-enabled
```

Glossary

CSM—Call Switching Module.

DMM—DuoDecimal Modem Module. A MICA hardware packaging with 12modems on a daughter board unit.

E1—European equivalent of T1. Thirty two channels of 64000 Hz—one for framing, one for signaling.

HMM—Hex Modem Module. A MICA hardware packaging with 6 modems on a daughter board unit.

IOS—Internet Operating System.

ISDN—Integrated Services Digital Network.

LLC—Logical Link Control.

MICA—Modem ISDN channel aggregation.

MSM—Modem State Machine.

PHS—Personal-Handyphone-System.

PIAFS—PHS Internet Access Forum Standard. ITU-T standard for support by ISDN of data terminal equipment with V-series type interfaces.

Portware—Software that runs on the MICA HMM or DMM modem module.

PRI—Primary Rate Interface.

Q.931—ISDN User-Network Interface Layer 3 specification for basic call control.