

PRODUCT INTRODUCTION

MD1230A-14

MD1231A-14

MU740701A-14

IGAP Protocol Test

ANRITSU CORPORATION

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IGAP Protocol Test

Protocol Analysis, Transmission, and Emulation for Advanced Protocol 10/100 Mb and 1 GbE Modules

Product Introduction

MD1230A-14
MD1231A-14
MU740701A-14



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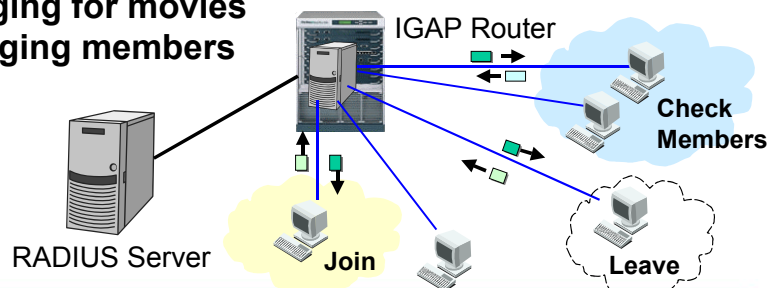
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IGAP Protocol

IGMP User Authentication Protocol (IGAP)

- IETF draft standard derived from IGMP multicast protocol
 - ◆ Proposed by Nortel, NTT
- Adds user authentication
 - ◆ Allows controls for who joins multicast groups
 - ◆ Valuable to control video streaming systems
 - Charging for movies
 - Managing members



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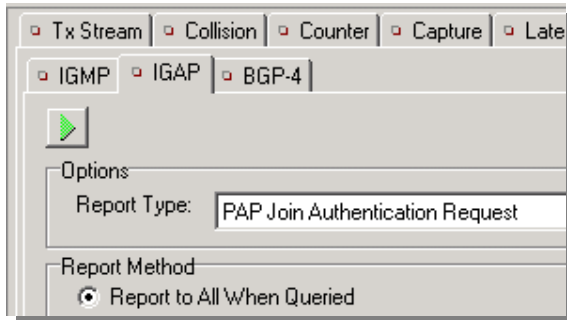
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IGAP In MD1230A Family

IGAP Protocol Software Option (-14)

- Supported on Advanced Protocol modules
 - ◆ 10M/100M Ethernet
 - ◆ 1 Gigabit Ethernet
- Supported on MD1230A, MD1231A, and MT7407A



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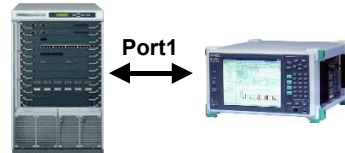
IGAP Test Applications

IGAP Analysis



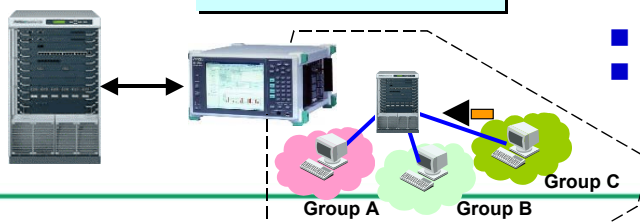
- Check IGAP sequence
- Analyze IGAP
- Troubleshooting

IGAP Packet Transmit



- Check IGAP sequence
- Check interconnection
- Perform abnormal tests

IGAP Emulation



- Check IGAP function
- Measure performance during multicasting

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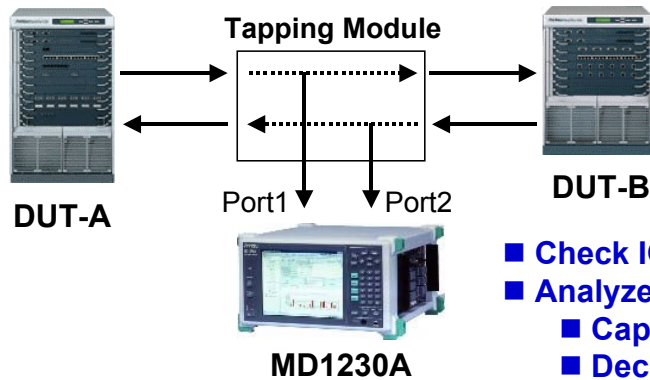
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IGAP Analysis

Application

- Supports both external tapping modules and pass-through mode operation



- Check IGAP sequence
- Analyze IGAP
 - Capture IGAP frames
 - Decode IGAP frames
- Troubleshooting

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IGAP Analysis

Capture And Decode

- Top window shows data for up to 40 ports at once
- Bottom window provides IGAP protocol decode for analysis

List of captured packets

Protocol analysis

Port	No.	Type	SA	DA	Len	Status	Captured Time
Unit1:32	97	IGAP	192.168.0.8	224.0.10.2	134	Good	11:32:39.13383
Unit1:32	98	IGAP	192.168.0.8	224.0.10.3	134	Good	11:32:39.13431
Unit1:32	99	IGAP	192.168.0.8	224.0.10.4	134	Good	11:32:39.13477
Unit1:32	100	IGAP	192.168.0.8	224.0.10.5	134	Good	11:32:39.13522
Unit1:32	101	IGAP	192.168.0.9	224.0.10.2	134	Good	11:32:39.46716
Unit1:32	102	IGAP	192.168.0.9	224.0.10.3	134	Good	11:32:39.46766
Unit1:32	103	IGAP	192.168.0.9	224.0.10.4	134	Good	11:32:39.46811
Unit1:32	104	IGAP	192.168.0.9	224.0.10.5	134	Good	11:32:39.46856
Unit1:32	105	IGAP	192.168.0.10	224.0.10.2	134	Good	11:32:39.46902
Unit1:32	106	IGAP	192.168.0.10	224.0.10.3	134	Good	11:32:39.46946
Unit1:32	107	IGAP	192.168.0.10	224.0.10.4	134	Good	11:32:39.46994
Unit1:32	108	IGAP	192.168.0.10	224.0.10.5	134	Good	11:32:39.47035

```

IGAP : --- IGAP Header ---
IGAP : Type = 40 (IGAP Membership Report)
IGAP : Max Resp Time = 00 (0)
IGAP : Checksum = 30 66 (correct)
IGAP : Group Address = E0 00 0A 04 (224.0.10.4 : DLSw Groups)
IGAP : Version = 10 (IGAP)
IGAP : Report Type = 02 (PAP Join Authentication Request)
IGAP : Reserved = FF (255)
IGAP : CHAP ID = 00 (0)
IGAP : Account Size = 09 (9)
IGAP : Message Size = 00 (0)
IGAP : Reserved = FF FF (65535)
IGAP : User Account = 32 30 10 20 01 11 18 30 - 32 00 00 00 00 00 00 20.....
    
```

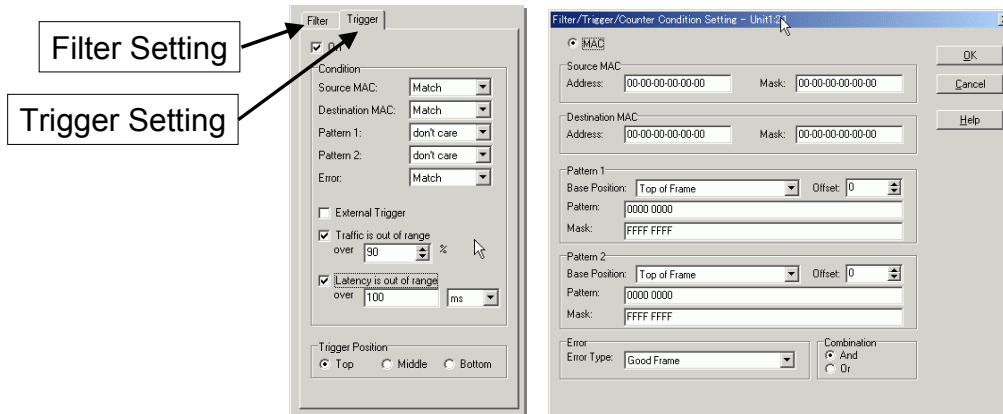
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IGAP Analysis

Efficient Troubleshooting



Trigger and filter functions help you **get only important data**
Solve auto-negotiation problems **quickly and efficiently**

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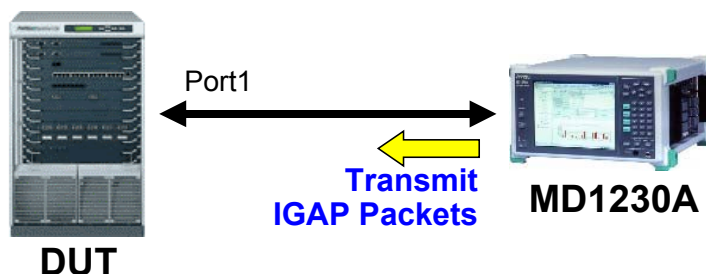
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IGAP Packet Transmit

Transmit Test Features

- Transmit IGAP packets
 - ◆ Check IGAP sequences
 - ◆ Check interconnection
 - ◆ Perform abnormal tests
- Sequences up to 256 patterns
- Transmit and capture work simultaneously



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IGAP Packet Transmit

IGAP Packet Edit

- Transmit up to 256 pattern streams
- Use easy sequencing such as Next, Jump, ...

Choose enable or disable for each pattern in this check box.

ID	Distribution	Length	Protocol	VLAN...	Errors
1	Next	Auto	IGAP/IPv4	None	None
2	Next	Auto	IGAP/IPv4	None	None
3	Next	Auto	IGAP/IPv4	None	None
4	Next	Auto	IGAP/IPv4	None	None
5	Jump to #1	Auto	IGAP/IPv4	None	None

Distribution: Next Stream
 Jump to ID: 1 Count: 1
 Inter Stream Gap: Unit ns Value 9600
 Inter Frame Gap: Fixed Value ns Unit 10M Value 960 Actual Value 960ns

Continuous
 Continuous Burst
 Stop after This Stream
Next Stream
 Jump to Stream
 Jump to Stream for Count

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IGAP Packet Transmit

IGAP Packet Edit

Choose type in Pull down menu

Choose type in Pull down menu

Shows packet graphically

It's possible to check various system by editing User Account and Message fields

Stream Setting - Unit121 - Stream 3

Type: hex 00-IGAP Membership Report (Join)
 Checksum: Auto
 Version: hex 10
 Group Size: Auto
 User Account: All 1
 Message: All 1

Max Response Time: 1 s
 Group Address: 0.0.0.0
 Report Type: hex 01-Basic Join
 CHAP ID: hex 00
 Message Size: Auto

01-Basic Join
 02-PAP Join Authentication Request
 03-CHAP Join Challenge Request
 04-CHAP Join Response

40-IGAP Membership Report (Join)
 41-IGAP Membership Query
 42-IGAP Leave Group

Destination Address
 Type
 Max Resp. Time
 Checksum
 Group Address
 Version
 Report Type
 Reserved
 CHAP ID
 Account Size
 Message Size
 Reserved

IGAP Programmable Editor

Binary Address 0 / Size 16 bytes
 Address 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
 000000 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
 000010
 000020
 000030
 ASCII:

IGAP Programmable Editor

Binary Address 0 / Size 64 bytes
 Address 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
 000000 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
 000010 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
 000020 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
 000030 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
 ASCII:

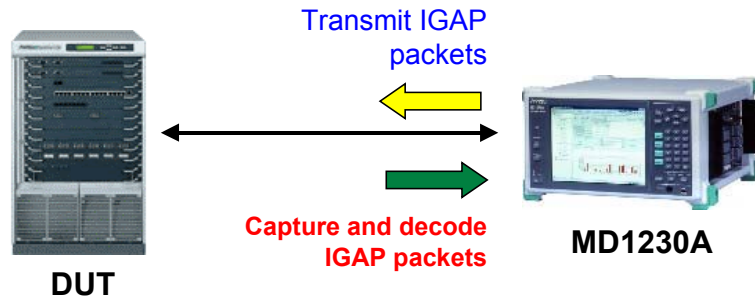
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IGAP Packet Transmit

Example



- Transmit an IGAP test sequence
 - ➡ Check the sequence of the IGAP response
- Transmit an abnormal IGAP sequence
 - ➡ Check the IGAP response under abnormal conditions

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IGAP Emulation

Simple Operation

Start / Stop

Choose the report method for IGAP Report Packets

Set Group IP address in IGAP Report Packet

Options

Report Type: PAP Join Authentication Request

Report Method

Report to All When Queried

Report to All Unsolicited (Frequency: 10 secs)

Report to None

Leave Method

None (Interval: 60 secs) (Trials: 0)

Transmit with interval (Resumption: 0 secs)

Multicast Group Address Range

Group IP Address: from 224.0.10.2 thru 224.0.10.5 Number of Addresses: 4

Unicast Address Range

Group IP Address: from 192.168.0.8 thru 192.168.0.10 Number of Addresses: 3

Log

No	Time	Send/Recv	Type
21	13:17:59 Oct 01, 2003	Send	40-IGAP Membership Request(IGAP Joi
22	13:17:59 Oct 01, 2003	Send	40-IGAP Membership Request(IGAP Joi
23	13:17:59 Oct 01, 2003	Send	40-IGAP Membership Request(IGAP Joi
24	13:17:59 Oct 01, 2003	Send	40-IGAP Membership Request(IGAP Joi

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IGAP Emulation

IGAP Report Options

The screenshot shows the IGAP software interface. At the top, there's an 'Options' section with 'Report Type' set to 'PAP Join Authentication Request' and a 'Send Router Alert' checkbox. An 'Edit...' button is circled in blue. Below this, there's a diagram showing a 'DUT' (Device Under Test) and an 'MD1230A' connected by a double-headed arrow, with a yellow arrow pointing from the MD1230A to the DUT labeled 'IGAP Report'. The main interface includes a 'Trial' section with 'T_auth' set to 10 and 'Robustness Variable' set to 1. There are two 'IGAP Programmable Editor' windows. The first window shows a table of patterns:

No.	Unicast	Multicast	Pattern
1	192.168.36.1	224.1.0.1	12 38 11 29 00 00
2	192.168.36.1	224.1.0.2	65 98 00 00 00 00
3	192.168.36.1	224.1.0.3	98 72 34 44 32 00
4	192.168.36.1	224.1.0.4	44 32 22 22 11 12
5	192.168.36.1	224.1.0.5	09 76 51 11 11 11
6	192.168.36.1	224.1.0.6	00 00 00 00 00 00
7	192.168.36.1	224.1.0.7	12 12 12 12 12 12
8	192.168.36.1	224.1.0.8	12 33 41 12 34 44
9	192.168.36.1	224.1.0.9	11 12 22 23 66 78

The second 'IGAP Programmable Editor' window shows a binary editor with a size of 64 bytes. The ASCII field is empty.

Set any User Account data and Message data in the IGAP report packet to test the system response to various conditions.

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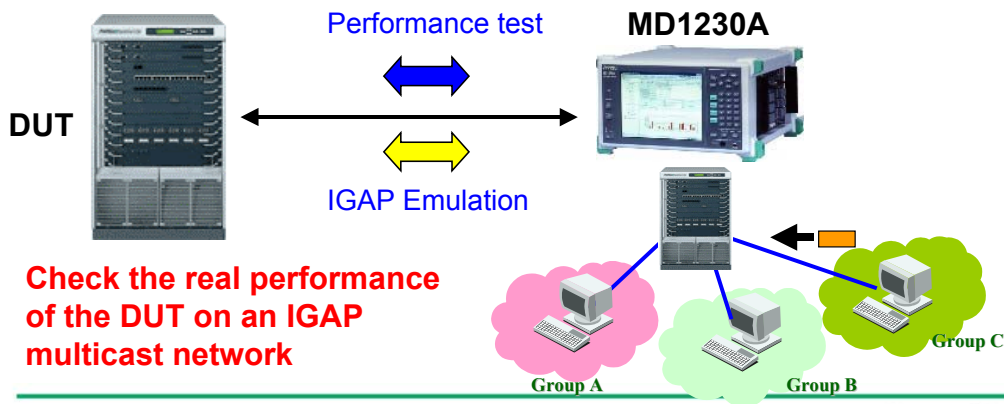
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IGAP Emulation

Performance Test During Emulation

- Emulate IGAP multicast
- Performance test during multicasting
 - ◆ Flap test: Join and Leave
 - ◆ Load testing and latency measurements



Check the real performance of the DUT on an IGAP multicast network

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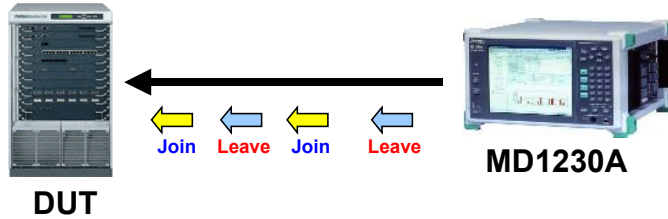
IGAP Emulation

Flap Test: Join and Leave

Leave Method

None (Interval: 60 secs) (Trials: 20)

Transmit with interval (Resumption: 10 secs)



**Perform flap tests of Join and Leave by setting the timings for transmitting Join and Leave request frames.
Check the grouping function for IGAP multicasting.**

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IGAP Emulation

Logging Function

No	Time	Send/Recv	Type
21	13:17:59 Oct 01, 2003	Send	40-IGAP Membership Request(IGAP Join)
22	13:17:59 Oct 01, 2003	Send	40-IGAP Membership Request(IGAP Join)
23	13:17:59 Oct 01, 2003	Send	40-IGAP Membership Request(IGAP Join)
24	13:17:59 Oct 01, 2003	Send	40-IGAP Membership Request(IGAP Join)

You can check the IGAP sequence during emulation because each sequence is shown in the Log field.

The detail of each sequence packet is shown in a separate window.

Item	Data
No:	22
Length:	96
Time:	13:17:59 Oct 01, 2003
Send/Recv:	Send
Type:	40-IGAP Membership Request(IGAP Join)
Max Resp T...:	0
Checksum:	67 2F
Group Addr...:	224.0.10.3
Version:	10
Report Type:	02-PAP Join Authentication Request
CHAP ID:	00
Account Size:	9
Message Size:	0
User Account:	32 30 10 20 01 11 18 30 33 00 00 00 00

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Thank You!

IGAP Protocol Test

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MD1231A-14
MU740701A-14



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Specifications are subject to change without notice.

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