

使用 IMA 干线连接 MGX 8220 AUSM-8T1/B 与 3620 的示例配置

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简介

本文为在ATM反向多路复用(IMA)中继组的一服务互通(SIW)连接提供配置信息。使用命令行界面(CLI)，每个设备的配置创建。SIW连接设立在Cisco 3620路由器ATM接口和Cisco MC 3810帧中继接口之间的IP连通性。四个T1 IMA中继线中继组设立在3620路由器T1 IMA和MGX8220 AUSM-8T1/B服务模块之间。MGX8220连接作为对BPX 8600的馈线架。BPX 8600提供从AUSM-8T1/B ATM连接的交换给FRSM-8T1帧中继连接在同样MGX8220。MGX8220 FRSM-8T1服务模块提供从ATM (AAL5SNAP封装)的SIW转换给帧中继(IETF封装)。

本文打算使用作为帮助配置Cisco设备，但是不是适当网络设计和计划的一种替代品与您的Cisco销售工程师，系统工程师或者客户经理。

先决条件

要求

本文档没有任何特定的要求。

使用的组件

本文档中的信息基于以下软件和硬件版本：

- **3620**：软件- Cisco IOS软件版本12.1(1a)T1。硬件-有8端口T1 IMA网络接口的Cisco 3620。
- **MC 3810**软件- Cisco IOS软件版本12.0(4)T。硬件-有T1 Multi-Flex Trunk (MFT)接口的Cisco MC 3810。
- **MGX 8220**固件- Cisco版本5.0.14和服务模块硬件和固件适当的版本。参考[广域网交换软件中心 \(仅限注册用户\)](#)。硬件- Cisco AUSM模式B服务模块使用ATM论坛兼容IMA。四个T1中继续用于连接在8端口AUSM-8T1/B服务模块和8端口3620 T1 IMA模块之间。AUSM-8T1/B和3620个T1 IMA服务模块使用RJ48连接器。FRSM-8T1服务模块使用RJ48连接器。
- **BPX 8600**软件- Cisco交换机软件版本9.1.18和卡硬件和固件适当的版本在[版本注释上指定](#)。硬件-使用BNI-T3卡集，BPX 8600连接对MGX8220馈线架。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

配置

本部分提供有关如何配置本文档所述功能的信息。

注意：要查找本文档所用命令的其他信息，请使用[命令查找工具](#)（[仅限注册用户](#)）。

网络图

本文档使用以下网络设置：

3620 路由器

配置ATM接口作为IMA组并且分配IP地址到逻辑IMA接口。所有**show**命令输出在本文的[Show Command部分](#)。对于其他请显示命令，并且故障排除信息，参考[排除故障在Cisco 2600及3600路由器的ATM IMA链路](#)。

```
r3620(config)#interface atm0/0 r3620(config-if)#ima-group 1 !-1- Add the interface to IMA group 1. r3620(config-if)#no shut r3620(config-if)#int atm0/1 r3620(config-if)#ima-group 1 !--- Each interface must be added to IMA group 1. r3620(config-if)#no shut r3620(config)#int atm0/2 r3620(config-if)#ima-group 1 r3620(config-if)#no shut r3620(config)#int atm0/3 r3620(config-if)#ima-group 1 r3620(config-if)#no shut r3620(config-if)#int ATM0/IMA1.10 point-to-point !--- Configure the IMA interface. r3620(config-subif)#ip add 2.2.2.1 255.255.255.0 r3620(config-subif)#ima active-links-minimum 1 r3620(config-subif)#ima differential-delay-maximum 75 r3620(config-subif)#pvc IMA-VC 10/20 r3620(config-if-at)#protocol ip 10.1.1.2 broadcast r3620(config-if-at)#encapsulation aal5snap r3620(config-if-at)#vbr-nrt 512 384 128 !--- Set the connection type.
```

此输出是为了IMA组要求的活动链路最小数量的能是可操作的。默认值为 1。

```
ima active-links-minimum 1
```

此输出是在IMA组中能在活动链路中存在的最大时间延迟。默认值是25毫秒(毫秒)。

ima differential-delay-maximum 75

此输出指定与512 Kbps峰值信元速率的一非实时可变比特率128个信元连接，平均信元速率384 Kbps和Maximum Burst Size (MBS)。

vbr-nrt 512 384 128

配置PCR的流量整形参数，SCR和MBS在路由器是重要避免丢弃造成的数据丢失在交换机。当流量整形参数在路由器时没有配置，数据初始路由器突发流量可能传送以端口速度。在本例中与撰写一个IMA端口的四物理T1的，端口速度高。如果交换机没有配置接受大最初的突发流量，数据丢弃。

MGX 8220 AUSM-8T1/B

发出strataCom级别dspfeature命令验证IMA功能启用在AUSM-8T1/B服务模块。如果strataCom级别访问不是可用的，请继续进行配置。

a1.1.10.AUSMB8.a > dspfeature Channelized: Off Rate Control: On IMA feature: On

如果IMA功能关闭或是无法添加IMA组，请与[思科技术支持\(仅限注册用户\)](#)联系与启用此功能的协助的。

添加在IMA组中包括在AUSM-8T1/B卡的线路。AUSM-8T1/B和3620条T1 IMA线路之间的关系显示此处。

服务模块	物理端口
3620 T1 IMA	0, 1, 2, 3
AUSM-8T1/B	1, 2, 3, 4

a1.1.10.AUSMB8.a > addln 1 a1.1.10.AUSMB8.a > addln 2 a1.1.10.AUSMB8.a > addln 3
a1.1.10.AUSMB8.a > addln 4

检查所有线路并且在添加他们前清除所有报警到IMA组。使用连续线路在IMA组中推荐，但是不需要的。IMA组可以被组成线路1, 3, 4和5。注意线路组帧和线性编码T1的在AUSM/B和3620之间必须配比。对于跨过国际边界的IMA组，configure network时钟源，在您添加线路前。

```

a1.1.10.AUSMB8.a > dsplns Line Conn Type Status/Coding Length XmtClock Alarm Stats Type Source
Alarm -----
dsx1ESF Ena/dsx1B8ZS 0-131 ft LocalTim No No 14.2 RJ-48 dsx1ESF Ena/dsx1B8ZS 0-131 ft LocalTim
No No 14.3 RJ-48 dsx1ESF Ena/dsx1B8ZS 0-131 ft LocalTim No No 14.4 RJ-48 dsx1ESF Ena/dsx1B8ZS 0-
131 ft LocalTim No No 14.5 RJ-48 dsx1ESF Dis/dsx1B8ZS 0-131 ft LocalTim 14.6 RJ-48 dsx1ESF
Dis/dsx1B8ZS 0-131 ft LocalTim 14.7 RJ-48 dsx1ESF Dis/dsx1B8ZS 0-131 ft LocalTim 14.8 RJ-48
dsx1ESF Dis/dsx1B8ZS 0-131 ft LocalTim LineNumOfValidEntries: 8 a1.1.10.AUSMB8.a > dspalms -ds1
Line AlarmState StatisticalAlarmState -----
14.1 No Alarms No
Statistical Alarms 14.2 No Alarms No Statistical Alarms 14.3 No Alarms No Statistical Alarms
14.4 No Alarms No Statistical Alarms

```

添加IMA组并且包括所有以上被添加的线路到组。如果IMA组没有清楚报警，在被添加在网络的每个结尾后，请逐个尝试添加一个中继IMA组和连续的中继。

a1.1.10.AUSMB8.a > addimagrp 1 1 1.2.3.4 1

用户输入	定义
addimagrp	添加IMA组。

1	范围自1到8.的IMA组编号值。
1	端口类型--1 - UNI , 2 - NNI
1.2. 3.4	链路列表—小点分离的链路列表。
1	最低不链路—组形成的最小数量的链路。从1的值范围到8。 注意： 此编号必须是相同的每在IMA组的结尾。在这种情况下IMA组的一端在3620，另一端在AUSM-8T1/B。

```
a1.1.10.AUSMB8.a > dspaimgrp 1 IMA Group number : 1 Port type : UNI Lines configured : 1.2.3.4
Enable : Enabled IMA Port state : Active IMA Group Ne state : operational PortSpeed (cells/sec)
: 14364 GroupTxAvailCellRate (cells/sec) : 14364 ImaGroupTxFrameLength(cells) : 128
LcpDelayTolerance (IMA frames) : 1 ReadPtrWrPtrDiff (cells) : 4 Minimum number of links : 1
MaxTolerableDiffDelay (msec) : 275 Lines Present : 1.2.3.4 !--- Verify all configured links are
present. ImaGroupRxImaId : 0x2 ImaGroupTxImaId : 0x2 Observed Diff delay (msec) : 0 Clock Mode :
CTC GroupAlpha : 2 GroupBeta : 2 GroupGamma : 1 Type <CR> to continue, Q<CR> to stop:
GroupConfiguration : 1 IMAGrp Failure status : No Failure Timing reference link : 3
```

验证AUSM-8T1/B IMA端口有效载荷不规则性配置是同那3620接口一样。有效载荷不规则性只开发保证ATM信元有效载荷不类似于信元头并且局部重要的。特别地，ATM接口的每侧必须有同一个有效载荷不规则性值，但是在网络的所有ATM接口不要求相同的配置。

```
a1.1.10.AUSMB8.a > dsports No ATM T1/E1 UNI ports currently active List of IMA groups:
===== ImaGrp PortType Conf Avail Lines configured Lines present Tol Diff Port e
rate rate Delay(ms) -----
- 14.1 UNI 14364 3591 1.2.3.4 1.2.3.4 275 Active NextPortNumAvailable: 8 a1.1.10.AUSMB8.a >
dsplpp 1 PhysicalPortNumber: 1 CellFraming: ATM CellScramble: No Scramble Plpp Loopback: No
Loopback Single-bit error correction: Disabled
```

现在请添加对IMA端口的一VBR连接有VPI 10和VCI的20。

```
a1.1.10.AUSMB8.a > addcon 200 0 1 10 20 2
```

用户输入	定义
addcon	添加对当前AUSM的一连接。
200	信道数—重视范围自16到1015。
0	连接类型—连接类型：0 - VCC，非零- VPC (1的本地VP Id到20(UNI)/100(STI)/340(NNI))
1	端口号—范围自1到8.的值。
10	信道VPI —虚拟路径标识符：0 - 255。 必须匹配在3620的VPI。
20	信道VCI —虚拟信道标识符：0 - 65535 VCC的，* VPC的。 必须匹配在3620的VCI。
2	服务类型—服务类型：1 - CBR，2 - VBR，3 - ABR，4 - UBR。 应该匹配在3620的连接类型。

配置VBR连接值反射那些3620。连接值例如没有优化和使用只。

```
a1.1.10.AUSMB8.a > cnfupcvbr ERR : incorrect number of parameters (not enough) Syntax :
cnfupcvbr "chan_num enable pcr[0+1] cdvt[0+1] scr scr_police mbs IngPcUtil EgSrvRate EgPcUtil
clp_tag " Channel # -- Channel Number : 16 - 1015 Enable/Disable -- UPC : 1 - Disable, 2 -
Enable PeakCellRate -- PCR [0+1]: 10-PortRate(T1-3622,E1-4528,clearE1-4830), For IMA,T1-3591,E1-
4490,clrE1-4789, multiply rate by #links CDVT[0+1] -- Cell Delay Variation [0+1]: 1 - 250000
micro_secs SCR -- Sustained Cell Rate:10-PortRate(T1-3622,E1-4528,clearE1-4830), For IMA,T1-
```

```
3591,E1-4490,clrE1-4789, multiply rate by #links SCR Policing -- 1 - CLP[0] Cells, 2 - CLP[0+1]
Cells, 3 - No SCR Policing Maximum Burst -- 1 - 5000 cells IngPcUtil -- Ingress percentage util: 1
to 127. 0 for default EgSrvRate -- Egress service rate:1-PortRate(T1-3622,E1-4528,clearE1-48,
For IMA,T1-3591,E1-4490,clrE1-4789, multiply rate by #links EgPcUtil -- Egress percentage util:
1 to 127. 0 for default Clp Tagging -- CLP TAG Enable : 1 - Disable, 2 - Enable a1.1.10.AUSMB8.a
> cnfupcvbr 200 2 3622 25000 2048 1 1000 100 2633 100 2
```

MC 3810

```
r3a#conf t r3a(config)#cont t1 0 r3a(config-controller)#framing esf r3a(config-
controller)#linecode b8zs r3a(config-controller)#channel-group 0 timeslots 1-24 speed 64
r3a(config-controller)#no shut r3a(config-controller)#int s0:0 r3a(config-if)#ip address 2.2.2.2
255.255.255.0 r3a(config-if)#encapsulation frame-relay IETF r3a(config-if)#frame-relay map ip
2.2.2.1 100 broadcast !-- associate the DLCI to the IP address r3a(config-if)#no shut
```

MGX 8220 FRSM

验证现有线路。

```
a1.1.9.FRSM.a > dsplns Line Conn Type Status/Coding Length XmtClock Alarm Stats Type Source
Alarm ----
Dis/dsx1B8ZS 0-110 ft LocalTim 6.2 DB-15 dsx1ESF Dis/dsx1B8ZS 0-110 ft LocalTim 6.3 DB-15
dsx1ESF Dis/dsx1B8ZS 0-110 ft LocalTim 6.4 DB-15 dsx1ESF Dis/dsx1B8ZS 0-110 ft LocalTim
LineNumOfValidEntries: 4
```

启用线路连接对MC3810路由器。注意线路组帧和线性编码T1的在FRSM和MC3810之间必须配比。

```
a1.1.9.FRSM.a > addln 1
```

启用逻辑端口并且为帧中继服务配置。

```
a1.1.9.FRSM.a > addport 1 1 2 1 24 1
```

用户输入	定义
addport	添加端口
1	端口号—范围自1 to192的值为T1and 1-2481接受。
1	线路号—重视范围自1到8。
2	DS0速度— 1 56k的， 2 64的K
1	开始slot —在1个基础的开始时间slot。
24	编号slot-number DS0时间间隙分配。
1	端口类型—值1-3， 1=frame中继， 2=FUNI mode-1a， 3=frForward

配置逻辑端口使用本地管理接口(LMI)发信号。此示例以启用的异步更新使用禁用的StrataLMI和高级LMI。

```
a1.1.9.FRSM.a > cnfport 1 S 2 n
```

用户输入	定义
cnfport	配置波尔特
1	端口号—范围自1 to192的值为E1的T1and 1到2481接受。
S	LMI信令— (N)—(S) trataLMI au-AnnexAUNI duAnnexDUNI an-AnnexANNI dn-AnnexDNNI。必须匹配在MC3810的LMI。

2	asyn UPD/UFS — (UPD =更新状态、UFS =主动提供全状态) (n或1) =两dis , (y或2) = UPD en , 3 = UFS en , 4 =两en
n	高级LMI — (N或n)禁用(Y或y) enable (event)

显示并且验证逻辑端口的配置。

```
a1.1.1.9.FRSM.a > dsports Port Ena/Speed EQServ SignalType T391 T392 N391 N392 N393 Type I Ratio
-----
6.1.1 Mod/1536 Kbps 1
StrataLMI 10 15 6 3 4 frameRel Number of ports: 1 PortDs0UsedLine1: 0x00ffffff PortDs0UsedLine2:
0x00000000 PortDs0UsedLine3: 0x00000000 PortDs0UsedLine4: 0x00000000 PortNumNextAvailable: 7
```

添加连接并且启用服务网络转换。注意连接值例如没有优化和使用只。

```
a1.1.1.9.FRSM.a > addchan 100 1 100 1536000 3
```

用户输入	定义
addchan	添加一个信道到当前FRSM
100	信道数—重视范围自16到1015。
1	端口号—范围自1 to192的值为E1的T1and 1到2481接受。
100	DLCI号码—重视范围自0到1023。必须匹配在MC3810的DLCI。
1536000	承诺速率--0-1536000 T1的位/秒;0-2048000 E1的位/秒。
3	chan类型值1到5, 1=NIW 2=SIW-transparent 3=SIW-xlation 4=FUNI 5=frForward

BPX 8600

添加MGX8220作为馈线架到BPX 8600交换机。发出uptrk命令启动T3中继。

```
b3 TRM SuperUser BPX 8600 9.1.18 Oct. 6 2000 10:48 GMT
TRK Type Current Line Alarm Status Other End
2.1 T3 Clear - OK -
```

```
Last Command: uptrk 2.1 Next Command:
```

检查中继并且清除所有报警。一旦中继是确切报警，请发出addshelf命令。

```
b3 TRM SuperUser BPX 8600 9.1.18 Oct. 6 2000 10:54 GMT
BPX 8600 Interface Shelf Information
```

```
Trunk Name Type Part Id Ctrl Id Alarm
2.1 a1 AXIS - - MIN
```

```
Last Command: addshelf 2.1 A Shelf has been added Next Command:
```

通过发出addcon命令添加在BPX 8600交换机的连接。连接值没有为对ATM服务互联的帧中继优化和例如使用只。关于ATM连接配置和故障排除的更多信息，参考[ATM连接配置和故障排除Cisco BPX 8600系列交换机](#)和[故障排除ATM PVC的问题](#)。

```
addcon 2.1.9.100 b3 2.1.10.200 atfr 2000/2000 * 25000/25000 1000/1000 * * * * *
```

用户	定义
----	----

输入	
add con	添加一连接。
2.1.9.10 0	连接号— <feeder_trunk_slot.feeder_trunk_port.FRSM_slot.FRSM_channel>
b3	远程节点名称—重复名称对于本地交换的连接。
2.1.10.2 00	连接号— <feeder_trunk_slot.feeder_trunk_port.AUSM_slot.AUSM_channel>
atfr	连接类型— ATM (在)对帧中继(FR)
200 0/20 00	PCR(0+1) [50/50] —峰值信元速率。对帧中继高峰信息速率(PIR)的等同信元丢失优先级0和CLP=1流量的。默认值是50在发送和接收方向。
100/ 100	%util [100/100] —百分比利用率。默认值是100在发送和接收方向。
250 00/2 500 0	CDVT(0+1) [250000/250000] —信元延迟变化容限。默认值是250000在发送和接收方向。
100 0/10 00	SCR [50/50] —可持续信元率。对帧中継承诺信息速率(CIR)的等同。默认值是50在发送和接收方向。
100 0/10 00	MBS [1000/1000] —最大突发大小。对帧中継超额突发大小(Be)的等同。默认值是1000在发送和接收方向。
3	修正[3] —用于的算法确定符合到约定的数据流。默认值是3 ATM论坛流量管理规范版本4.0 VBR.3的。
128 0/12 80	VC Qdepth [1280/1280] —虚拟连接队列深度。在发送和接收方向的DEFAULT值is1280。
35/3 5	EFCI [35/35] —明确的前向拥塞指示。对帧中継前向显式拥塞通知(FECN)的等同。配置每个BXM的端口队列。在发送和接收方向的默认值is35。
1/1	IBS [1/1] —初始突发量。对帧中継Cmax的等同。在发送和接收方向的默认值is1。

显示命令

[命令输出解释程序工具](#) ([仅限注册用户](#)) 支持某些 **show** 命令，使用此工具可以查看对 **show** 命令输出的分析。

Summary命令：

- [show version](#)
- [show run](#)
- [show atm pvc](#)
- [show interface atm0/0](#)

- [show atm interface atm0/0](#)
- [show interface ATM0/IMA1](#)
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- [show ima interface atm0/ima1详细信息](#)
- [显示继续的atm0/ima1](#)

```

r3620#ping 2.2.2.2 Type escape sequence to abort. Sending 5, 100-byte ICMP Echos to 2.2.2.2,
timeout is 2 seconds: !!!!! Success rate is 100 percent (5/5), round-trip min/avg/max =
104/136/148 ms r3620#show version Cisco Internetwork Operating System Software IOS (tm) 3600
Software (C3620-JS-M), Version 12.1(1a)T1, RELEASE SOFTWARE (fc1) Copyright (c) 1986-2000 by
cisco Systems, Inc. Compiled Mon 03-Apr-00 11:10 by ccai Image text-base: 0x600088F0, data-base:
0x612A6000 ROM: System Bootstrap, Version 11.1(20)AA2, EARLY DEPLOYMENT RELEASE SOFTWARE ()
r3620 uptime is 4 hours, 27 minutes System returned to ROM by power-on System image file is
"flash:c3620-js-mz.121-1a.T1" cisco 3620 (R4700) processor (revision 0x81) with 57344K/8192K
bytes of memory. Processor board ID 10707918 R4700 CPU at 80Mhz, Implementation 33, Rev 1.0
Bridging software. X.25 software, Version 3.0.0. SuperLAT software (copyright 1990 by Meridian
Technology Corp). TN3270 Emulation software. 16 ATM network interface(s) DRAM configuration is
32 bits wide with parity disabled. 29K bytes of non-volatile configuration memory. 16384K bytes
of processor board System flash (Read/Write) Configuration register is 0x2102 r3620#show run
Building configuration... Current configuration: ! version 12.1 service timestamps debug uptime
service timestamps log uptime service password-encryption ! hostname r3620 ! ! ! ! ! ip
subnet-zero no ip domain-lookup ! cns event-service server ! ! ! ! interface ATM0/0 no ip
address no atm ilmi-keepalive ima-group 1 no scrambling-payload ! interface ATM0/1 no ip address
no atm ilmi-keepalive ima-group 1 no scrambling-payload ! interface ATM0/2 no ip address no atm
ilmi-keepalive ima-group 1 no scrambling-payload ! interface ATM0/3 no ip address no atm ilmi-
keepalive ima-group 1 no scrambling-payload ! interface ATM0/4 no ip address shutdown no atm
ilmi-keepalive no scrambling-payload ! interface ATM0/5 no ip address shutdown no atm ilmi-
keepalive no scrambling-payload ! interface ATM0/6 no ip address shutdown no atm ilmi-keepalive
no scrambling-payload ! interface ATM0/7 no ip address shutdown no atm ilmi-keepalive no
scrambling-payload ! interface ATM0/IMA1 no ip address no atm ilmi-keepalive ! interface
ATM0/IMA1.10 point-to-point ip address 2.2.2.1 255.255.255.0 pvc 10/20 protocol ip 2.2.2.2
broadcast encapsulation aal5snap ! ! interface ATM1/0 no ip address shutdown no atm ilmi-
keepalive no scrambling-payload ! interface ATM1/1 no ip address shutdown no atm ilmi-keepalive
no scrambling-payload ! interface ATM1/2 no ip address shutdown no atm ilmi-keepalive no
scrambling-payload ! interface ATM1/3 no ip address shutdown no atm ilmi-keepalive no
scrambling-payload ! interface ATM1/4 no ip address shutdown no atm ilmi-keepalive no
scrambling-payload ! interface ATM1/5 shutdown no atm ilmi-keepalive no scrambling-payload !
interface ATM1/6 no ip address shutdown no atm ilmi-keepalive no scrambling-payload ! interface
ATM1/7 no ip address shutdown no atm ilmi-keepalive no scrambling-payload ! ip classless no ip
http server ! ! ! line con 0 transport input none line aux 0 line vty 0 4 login ! end r3620#show
atm pvc VCD / Peak Avg/Min Burst Interface Name VPI VCI Type Encaps SC Kbps Kbps Cells Sts
0/IMA1.10 1 10 20 PVC SNAP UBR 1500 UP r3620#show interface atm0/0 ATM0/0 is up, line protocol is
up Hardware is ATM T1 MTU 4470 bytes, sub MTU 4470, BW 1500 Kbit, DLY 20000 usec, reliability
0/255, txload 1/255, rxload 1/255 Encapsulation ATM, loopback not set Keepalive not supported
Encapsulation(s): AAL5 256 maximum active VCs, 0 current VCCs VC idle disconnect time: 300
seconds Last input never, output never, output hang never Last clearing of "show interface"
counters never Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0 Queueing
strategy: Per VC Queueing 5 minute input rate 0 bits/sec, 0 packets/sec 5 minute output rate 0
bits/sec, 0 packets/sec 0 packets input, 0 bytes, 0 no buffer Received 0 broadcasts, 0 runts, 0
giants, 0 throttles 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort 0 packets
output, 0 bytes, 0 underruns 0 output errors, 0 collisions, 1 interface resets 0 output buffer
failures, 0 output buffers swapped out r3620#show atm interface atm0/0 Interface ATM0/0: AAL
enabled: AAL5 , Maximum VCs: 256, Current VCCs: 0 Maximum Transmit Channels: 0 Max. Datagram
Size: 4496 PLIM Type: DS1, Framing is T1 ESF, TX clocking: LINE Cell-payload scrambling: OFF 0
input, 0 output, 0 IN fast, 0 OUT fast, 0 out drop Avail bw = 1500 Config. is ACTIVE r3620#show
interface ATM0/IMA1 ATM0/IMA1 is up, line protocol is up Hardware is ATM IMA MTU 4470 bytes, sub
MTU 4470, BW 6000 Kbit, DLY 20000 usec, reliability 236/255, txload 1/255, rxload 1/255
Encapsulation ATM, loopback not set Keepalive not supported Encapsulation(s): AAL5 256 maximum
active VCs, 1 current VCCs VC idle disconnect time: 300 seconds Last input 00:04:32, output

```


00:04:32, output hang never Last clearing of "show interface" counters never Input queue:
0/75/0/0 (size/max/drops/flushes); Total output drops: 0 Queueing strategy: Per VC Queueing 5
minute input rate 0 bits/sec, 0 packets/sec 5 minute output rate 0 bits/sec, 0 packets/sec 41
packets input, 4548 bytes, 0 no buffer Received 0 broadcasts, 0 runts, 0 giants, 0 throttles 0
input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort 493 packets output, 30688 bytes, 0
underruns 0 output errors, 0 collisions, 1 interface resets 0 output buffer failures, 0 output
buffers swapped out r3620#**show interface ATM0/IMA1.10** ATM0/IMA1.10 is up, line protocol is up
Hardware is ATM IMA Internet address is 2.2.2.1/24 MTU 4470 bytes, BW 6000 Kbit, DLY 20000 usec,
reliability 236/255, txload 1/255, rxload 1/255 Encapsulation ATM 41 packets input, 4548 bytes
493 packets output,30688 bytes 438 OAM cells input, 438 OAM cells output AAL5 CRC errors : 0
AAL5 SAR Timeouts : 0 AAL5 Oversized SDUs : 0 r3620#**show ima interface atm0/0** Interface ATM0/0 is
up ifIndex 1, Group Index 1, Row Status is active Tx/Rx Lid 0/0, relative delay 0ms Ne Tx/Rx
state active/active Fe Tx/Rx state active/active Ne Rx failure status is noFailure Fe Rx failure
status is noFailure Rx test pattern 0x43, test procedure disabled IMA Link Current Counters
(time elapsed 756 seconds): 0 Ima Violations, 0 Oif Anomalies 0 Ne Severely Err Secs, 0 Fe
Severely Err Secs 0 Ne Unavail Secs, 0 Fe Unavail Secs 0 Ne Tx Unusable Secs, 0 Ne Rx Unusable
Secs 0 Fe Tx Unusable Secs, 0 Fe Rx Unusable Secs 0 Ne Tx Failures, 0 Ne Rx Failures 0 Fe Tx
Failures, 0 Fe Rx Failures IMA Link Total Counters (last 7 15 minute intervals): 1 Ima
Violations, 3 Oif Anomalies 12 Ne Severely Err Secs, 0 Fe Severely Err Secs 3600 Ne Unavail
Secs, 0 Fe Unavail Secs 1802 Ne Tx Unusable Secs, 3602 Ne Rx Unusable Secs 2 Fe Tx Unusable
Secs, 0 Fe Rx Unusable Secs 0 Ne Tx Failures, 8 Ne Rx Failures 0 Fe Tx Failures, 0 Fe Rx
Failures r3620#**show ima interface atm0/imal detail** Interface ATM0/IMA1 is up Group index is 1 Ne
state is operational, failure status is noFailure Active links bitmap 0xF IMA Group Current
Configuration: Tx/Rx configured links bitmap 0xF/0xF Tx/Rx minimum required links 1/1 Maximum
allowed diff delay is 25ms, Tx frame length 128 Ne Tx clock mode CTC, configured timing
reference link ATM0/0 Test pattern procedure is disabled Detailed group Information: Tx/Rx
Ima_id 0x1/0x0, symmetry symmetricOperation Number of Tx/Rx configured links 4/4 Number of Tx/Rx
active links 4/4 Fe Tx clock mode ctc, Rx frame length 128 Tx/Rx timing reference link 0/0
Maximum observed diff delay 0ms, least delayed link 2 Running seconds 9273 GTSM last changed
03:49:15 UTC Mon Mar 1 1993 IMA Group Current Counters (time elapsed 870 seconds): 0 Ne
Failures, 0 Fe Failures, 0 Unavail Secs IMA Group Interval(1) Counters: 0 Ne Failures, 0 Fe
Failures, 0 Unavail Secs IMA Group Interval(2) Counters: 0 Ne Failures, 0 Fe Failures, 0 Unavail
Secs IMA Group Interval(3) Counters: 0 Ne Failures, 0 Fe Failures, 0 Unavail Secs IMA Group
Interval(4) Counters: 1 Ne Failures, 1 Fe Failures, 900 Unavail Secs IMA Group Interval(5)
Counters: 0 Ne Failures, 0 Fe Failures, 900 Unavail Secs IMA Group Interval(6) Counters: 0 Ne
Failures, 0 Fe Failures, 900 Unavail Secs IMA Group Interval(7) Counters: 1 Ne Failures, 0 Fe
Failures, 900 Unavail Secs IMA Group Total Counters (last 8 15 minute intervals): 3 Ne Failures,
2 Fe Failures, 3604 Unavail Secs Detailed IMA link Information: Interface ATM0/0 is up ifIndex
1, Group Index 1, Row Status is active Tx/Rx Lid 0/0, relative delay 0ms Ne Tx/Rx state
active/active Fe Tx/Rx state active/active Ne Rx failure status is noFailure Fe Rx failure
status is noFailure Rx test pattern 0x43, test procedure disabled IMA Link Current Counters
(time elapsed 61 seconds): 0 Ima Violations, 0 Oif Anomalies 0 Ne Severely Err Secs, 0 Fe
Severely Err Secs 0 Ne Unavail Secs, 0 Fe Unavail Secs 0 Ne Tx Unusable Secs, 0 Ne Rx Unusable
Secs 0 Fe Tx Unusable Secs, 0 Fe Rx Unusable Secs 0 Ne Tx Failures, 0 Ne Rx Failures 0 Fe Tx
Failures, 0 Fe Rx Failures IMA Link Interval(1) Counters: 0 Ima Violations, 0 Oif Anomalies 0 Ne
Severely Err Secs, 0 Fe Severely Err Secs 0 Ne Unavail Secs, 0 Fe Unavail Secs 0 Ne Tx Unusable
Secs, 0 Ne Rx Unusable Secs 0 Fe Tx Unusable Secs, 0 Fe Rx Unusable Secs 0 Ne Tx Failures, 0 Ne
Rx Failures 0 Fe Tx Failures, 0 Fe Rx Failures IMA Link Interval(2) Counters: 0 Ima Violations,
0 Oif Anomalies 0 Ne Severely Err Secs, 0 Fe Severely Err Secs 0 Ne Unavail Secs, 0 Fe Unavail
Secs 0 Ne Tx Unusable Secs, 0 Ne Rx Unusable Secs 0 Fe Tx Unusable Secs, 0 Fe Rx Unusable Secs 0
Ne Tx Failures, 0 Ne Rx Failures 0 Fe Tx Failures, 0 Fe Rx Failures IMA Link Interval(3)
Counters: 0 Ima Violations, 0 Oif Anomalies 0 Ne Severely Err Secs, 0 Fe Severely Err Secs 0 Ne
Unavail Secs, 0 Fe Unavail Secs 0 Ne Tx Unusable Secs, 0 Ne Rx Unusable Secs 0 Fe Tx Unusable
Secs, 0 Fe Rx Unusable Secs 0 Ne Tx Failures, 0 Ne Rx Failures 0 Fe Tx Failures, 0 Fe Rx
Failures r3620#**show cont atm0/imal** Interface ATM0/IMA1 is up Hardware is ATM IMA LANE client MAC
address is 0050.7305.e681 hwidb=0x62384A14, ds=0x61D6D2E0 slot 0, unit 1, subunit 1 rs8234 base
0x3C000000, slave base 0x3C000000 rs8234 ds 0x61D6D2E0 SBDs - avail 2048, guaranteed 1,
unguaranteed 2047, starved 0 Seg VCC table 3C00B800, Shadow Seg VCC Table 61D89928, VCD Table
61D9F954 Schedule table 3C016800, Shadow Schedule table 61DA5980, Size C7E RSM VCC Table
3C03EA80, Shadow RSM VCC Table 61DABC80 VPI Index Table 3C03C000, VCI Index Table 3C03E680
Bucket2 Table 3C026200, Shadow Bucket2 Table 61DA8BA4 MCR Limit Table 3C026600, Shadow MCR Table
61DAA7D0 ABR template 3C026800, Shadow template 61A738E0 RM Cell RS Queue 3C03C680 Queue TXQ
Addr Pos StQ Addr Pos 0 UBR CHN0 3C038800 0 039184A0 0 1 UBR CHN1 3C038C00 0 03918CA0 0 2 UBR

```

CHN2 3C039000 0 039194A0 0 3 UBR CHN3 3C039400 237 03919CA0 237 4 VBR/ABR CHN0 3C039800 0
0391A4A0 0 5 VBR/ABR CHN1 3C039C00 0 0391ACA0 0 6 VBR/ABR CHN2 3C03A000 0 0391B4A0 0 7 VBR/ABR
CHN3 3C03A400 0 0391BCA0 0 8 VBR-RT CHN0 3C03A800 0 0391C4A0 0 9 VBR-RT CHN1 3C03AC00 0 0391CCA0
0 10 VBR-RT CHN2 3C03B000 0 0391D4A0 0 11 VBR-RT CHN3 3C03B400 0 0391DCA0 0 12 SIG 3C03B800 0
0391E4A0 0 13 VPD 3C03BC00 0 0391ECA0 0 Queue FBQ Addr Pos RSQ Addr Pos 0 OAM 3C0FEA80 181
0391F560 182 1 UBR CHN0 3C0FFA80 0 03920560 0 2 UBR CHN1 3C100A80 0 03921560 0 3 UBR CHN2
3C101A80 0 03922560 0 4 UBR CHN3 3C102A80 40 03923560 41 5 VBR/ABR CHN0 3C103A80 0 03924560 0 6
VBR/ABR CHN1 3C104A80 0 03925560 0 7 VBR/ABR CHN2 3C105A80 0 03926560 0 8 VBR/ABR CHN3 3C106A80
0 03927560 0 9 VBR-RT CHN0 3C107A80 0 03928560 0 10 VBR-RT CHN1 3C108A80 0 03929560 0 11 VBR-RT
CHN2 3C109A80 0 0392A560 0 12 VBR-RT CHN3 3C10AA80 0 0392B560 0 13 SIG 3C10BA80 0 0392C560 0 SAR
Scheduling channels: 3 3 3 3 -1 -1 -1 -1 ATM channel number is 3 link members are 0xF, active
links are 0xF Group status is noFailure, 4 links configured, Group Info: Configured links bitmap
0xF, Active links bitmap 0xF, Tx/Rx IMA_id 0x1/0x0, NE Group status is operational, frame length
0x80, Max Diff Delay 0, 1 min links, cclock mode ctc, symmetry symmetricOperation, trl 0, Group
Failure status is noFailure. Test pattern procedure is disabled SAR counter totals across all
links and groups: 603 cells output, 0 cells stripped 560 cells input, 17573739 cells discarded,
0 AAL5 frames discarded 0 pci bus err, 0 dma fifo full err, 0 rsm parity err 0 rsm syn err, 0
rsm/seg q full err, 0 rsm overflow err 0 hs q full err, 0 no free buff q err, 0 seg underflow
err 0 host seg stat q full err

```

MGX 8220 AUSM-8T1/B

Summary命令：

- [version](#)
- [dspfeature](#)
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- [dspln](#)
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- [dspimagrp](#)
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- [dspimagrpcnt](#)
- [dspimalncnt](#)
- [dspimaln](#)
- [dspchan](#)
- [tstcon](#)
- [dspchan](#)

```

a1.1.10.AUSMB8.a > version ***** Cisco Systems, Inc. AXIS AUSM-8T1/E1 Card ***** Firmware
Version = 5.0.12 Backup Boot version = AU8_BT_1.0.02 AUSM8p Xilinx file = ausm8pXilinx.h VxWorks
(for Cisco Systems, Inc.) version 5.1.1-R3000. Kernel: WIND version 2.4. Made on Wed Jun 21
18:24:45 PDT 2000. Boot line: a1.1.10.AUSMB8.a > dspsfeature Channelized: Off Rate Control: On IMA
feature: On a1.1.10.AUSMB8.a > dsplns Line Conn Type Status/Coding Length XmtClock Alarm Stats
Type Source Alarm ---- ---- ----- ----- ----- ----- ----- -----
10.1 RJ-48 dsx1ESF Ena/dsx1B8ZS 0-131 ft LocalTim No No 10.2 RJ-48 dsx1ESF Ena/dsx1B8ZS 0-131 ft
LocalTim No No 10.3 RJ-48 dsx1ESF Ena/dsx1B8ZS 0-131 ft LocalTim No No 10.4 RJ-48 dsx1ESF
Ena/dsx1B8ZS 0-131 ft LocalTim No No 10.5 RJ-48 dsx1ESF Dis/dsx1B8ZS 0-131 ft LocalTim 10.6 RJ-
48 dsx1ESF Dis/dsx1B8ZS 0-131 ft LocalTim 10.7 RJ-48 dsx1ESF Dis/dsx1B8ZS 0-131 ft LocalTim 10.8
RJ-48 dsx1ESF Dis/dsx1B8ZS 0-131 ft LocalTim LineNumOfValidEntries: 8 a1.1.10.AUSMB8.a > dspln 1
LineNum: 1 LineConnectorType: RJ-48 LineType: dsx1ESF LineEnable: Enabled LineCoding: dsx1B8ZS
LineLength: 0-131 ft LineXmtClockSource: LocalTiming LineLoopbackCommand: NoLoop LineSendCode:
NoCode LineUsedTimeslotsBitMap: 0xffffffff LineLoopbackCodeDetection: codeDetectDisabled
LineBERTEnable: Disable LineNumOfValidEntries: 8 a1.1.10.AUSMB8.a > dsppports No ATM T1/E1 UNI
ports currently active List of IMA groups: ===== ImaGrp PortType Conf Avail Lines
configured Lines present Tol Diff Port e rate rate Delay(ms) -----
----- ----- 10.1 UNI 14364 14364 1.2.3.4 1.2.3.4 275 B/w chd

```

```

NextPortNumAvailable: 8 a1.1.10.AUSMB8.a > dspmaggrp 1 IMA Group number : 1 Port type : UNI Lines
configured : 1.2.3.4 Enable : Enabled IMA Port state : B/w changed IMA Group Ne state :
operational PortSpeed (cells/sec) : 14364 GroupTxAvailCellRate (cells/sec) : 14364
ImaGroupTxFrameLength(cells) : 128 LcpDelayTolerance (IMA frames) : 1 ReadPtrWrPtrDiff (cells) :
4 Minimum number of links : 1 MaxTolerableDiffDelay (msec) : 275 Lines Present : 1.2.3.4
Observed Diff delay (msec) : 0 Clock Mode : CTC GroupAlpha : 2 GroupBeta : 2 GroupGamma : 1
GroupConfiguration : 1 IMAGrp Failure status : No Failure Timing reference link : 1
ImaGroupTxImaId : 0x0 ExpectedGroupRxImaId : 0x1 a1.1.10.AUSMB8.a > dspmainfo Link Group NeTx
NeRx FeTx FeRx TxLID RxID State State State State -----
----- 1 1 Active Active Active Active 0 0 2 1 Active Active Active Active 1 1 3 1
Active Active Active Active 2 2 4 1 Active Active Active Active 3 3 a1.1.10.AUSMB8.a > dspplpp 1
PhysicalPortNumber: 1 CellFraming: ATM CellScramble: No Scramble Plpp Loopback: No Loopback
Single-bit error correction: Disabled a1.1.10.AUSMB8.a > dspmagrpcnt 1 IMA Group number: 1 Ne
Number of failures : 0 a1.1.10.AUSMB8.a > dspimalncnt 1 1 IMA group number : 1 Line number : 1
Icp Cells Received : 140041 Icp Errored Cells Recvd : 10 Ima Violations Count : 10 Ima OIF
anomalies : 0 Ima Ne Severely Errored Seconds : 0 Ima Fe Severely Errored Seconds : 1 Ima Ne
Unavailable Seconds : 0 Ima Fe Unavailable Seconds : 0 Ima NeTx Unusable Seconds : 1336 Ima NeRx
Unusable Seconds : 1335 Ima FeTx Unusable Seconds : 1 Ima FeRx Unusable Seconds : 1 Ima FeTx
Num. Failues : 0 Ima FeRx Num. Failures : 0 # HEC errored cells : 0 # HEC errored seconds : 0 #
Severely HEC errored seconds : 0 a1.1.10.AUSMB8.a > dspimaln 1 1 IMA Group number : 1 Link number
: 1 ImaLink TxLid : 0x0 ImaLink RxLid : 0x0 LinkNeRxState : Active LinkNeTxState : Active
LinkNeRxFailureStatus : No Failure LinkFeRxState : Active LinkFeTxState : Active
LinkFeRxFailureStatus : No Failure LinkRelDelay : 0 LinkRxTestPattern : 255 Ne Link Tx Num
Failures : 0 Ne Link Rx Num Failures : 0 a1.1.10.AUSMB8.a > dspchans Chan Port.VPI.VCI ConnType
Service Type PCR[0+1] Q-Depth State ---- -----
---- 200 1.10.20 VCC VBR 10 1000 Active ChanNumNextAvailable : 18 Local VpId NextAvailable : 16
a1.1.10.AUSMB8.a > tstcon 200 tstcon in progress Test passed. r3620#ping 2.2.2.2 Type escape
sequence to abort. Sending 5, 100-byte ICMP Echos to 2.2.2.2, timeout is 2 seconds: .....
```

Success rate is 0 percent (0/5) a1.1.10.AUSMB8.a > **dspchan 200** ChanNum: 200 RowStatus: Mod
ConnectionType: VCC ServiceType: VBR PortNum: 1 VPI: 10 VCI (For VCC): 20 Local VPIId(for VPC): 0
EgressQNum: 3 IngressQDepth(cells): 1000 IngressDiscardOption: CLP hysteresis
IngressFrameDiscardThreshold 1000 IngressQCLPHigh(cells): 900 IngressQCLPLow(cells): 800
QCLPState: LOW IngressEfcThreshold(cells): 1000 UPCEnable: Enabled
PeakCellRate[0+1](cells/sec): 50 *!--- PINGs set at port speed are discarded.*
CellDelayVariation[0+1]: 10000 (micro secs) PeakCellRate[0](cells/sec): 14364
CellDelayVariation[0]: 250000 (micro secs) SustainedCellRate(cells/sec): 50 *!--- PINGs set at
port speed are discarded.* MaximumBurstSize(cells): 1000 SCRPolicing: CLP[0] CLPTagEnable:
Enabled FrameGCRAEnable: Disable ForesightEnable: Disable InitialBurstSize(cells): 0
ForeSightPeakCellRate(cells/sec): 50 MinimumCellRate(cells/sec): 50 InitialCellRate(cells/sec):
50 LocalRemoteLpbkState: Disable ChanTestType: No Test ChanTestState: Passed ChanRTDresult: 1 ms
Ingress percentage util: 100 Egress percentage util : 100 Egress Service Rate: 50
ChanOvrSubOvrRide: Enabled ChanNumNextAvailable : 17 Local VpId NextAvailable : 6 r3620#ping
2.2.2.2 Type escape sequence to abort. Sending 5, 100-byte ICMP Echos to 2.2.2.2, timeout is 2
seconds: Success rate is 0 percent (0/5) **After cnfupcvbr command is used to increase
connection parameter:** a1.1.10.AUSMB8.a > **dspchan 200** ChanNum: 200 RowStatus: Mod ConnectionType:
VCC ServiceType: VBR PortNum: 1 VPI: 10 VCI (For VCC): 20 Local VPIId(for VPC): 0 EgressQNum: 3
IngressQDepth(cells): 1000 IngressDiscardOption: CLP hysteresis IngressFrameDiscardThreshold
1000 IngressQCLPHigh(cells): 900 IngressQCLPLow(cells): 800 QCLPState: LOW
IngressEfcThreshold(cells): 1000 UPCEnable: Enabled PeakCellRate[0+1](cells/sec): 3622
CellDelayVariation[0+1]: 25000 (micro secs) PeakCellRate[0](cells/sec): 14364
CellDelayVariation[0]: 250000 (micro secs) SustainedCellRate(cells/sec): 2048
MaximumBurstSize(cells): 1000 SCRPolicing: CLP[0] CLPTagEnable: Enabled FrameGCRAEnable: Disable
ForesightEnable: Disable InitialBurstSize(cells): 0 ForeSightPeakCellRate(cells/sec): 3622
MinimumCellRate(cells/sec): 3622 InitialCellRate(cells/sec): 3622 LocalRemoteLpbkState: Disable
ChanTestType: No Test ChanTestState: Passed ChanRTDresult: 1 ms Ingress percentage util: 100
Egress percentage util : 100 Egress Service Rate: 2633 ChanOvrSubOvrRide: Enabled
ChanNumNextAvailable : 17 Local VpId NextAvailable : 16 r3620#ping **2.2.2.2** Type escape sequence
to abort. Sending 5, 100-byte ICMP Echos to 2.2.2.2, timeout is 2 seconds: !!!!! Success rate is
100 percent (5/5), round-trip min/avg/max = 8/13/28 ms

Summary命令：

- [show version](#)
- [show run](#)
- [show fr PVC](#)
- [显示contr T1 0](#)
- [show interface s0:0](#)
- [debug frame-relay lmi](#)

```
r3a#ping 2.2.2.1 Type escape sequence to abort. Sending 5, 100-byte ICMP Echos to 2.2.2.1,
timeout is 2 seconds: !!!!! Success rate is 100 percent (5/5), round-trip min/avg/max =
104/134/144 ms r3a#show version Cisco Internetwork Operating System Software IOS (tm) MC3810
Software (MC3810-JS-M), Version 12.0(4)T, RELEASE SOFTWARE (fc) Copyright (c) 1986-1999 by cisco
Systems, Inc. Compiled Wed 28-Apr-99 21:19 by kpma Image text-base: 0x00023000, data-base:
0x00AF1324 ROM: System Bootstrap, Version 11.3(1)MA1, MAINTENANCE INTERIM SOFTWARE ROM: MC3810
Software (MC3810-WBOOT-M), Version 11.3(1)MA1, MAINTENANCE INTERIM r3a uptime is 2 hours, 51
minutes System restarted by reload System image file is "flash:mc3810-js-mz.120-4.T.bin" Cisco
MC3810 (MPC860) processor (revision 06.07) with 27648K/5120K bytes of mem. Processor board ID
09550018 PPC860 PowerQUICC, partnum 0x0000, version A03(0x0013) Channelized E1, Version 1.0.
Bridging software. X.25 software, Version 3.0.0. SuperLAT software copyright 1990 by Meridian
Technology Corp). TN3270 Emulation software. Primary Rate ISDN software, Version 1.1. MC3810 SCB
board (v05.A0) 1 Multiflex T1(slot 3) RJ45 interface(v01.K0) 1 Six-Slot Analog Voice Module
(v03.K0) 1 Analog FXS voice interface (v03.K0) port 1/1 1 3-DSP(slot2) Voice Compression
Module(v01.--) 1 Ethernet/IEEE 802.3 interface(s) 1 Serial network interface(s) 2
Serial(sync/async) network interface(s) 1 Channelized E1/PRI port(s) 1 Channelized T1/PRI
port(s) 256K bytes of non-volatile configuration memory. 8192K bytes of processor board System
flash (INTEL28F016) Configuration register is 0x2102 r3a#show run Building configuration...
Current configuration: ! version 12.0 service timestamps debug uptime service timestamps log
uptime service password-encryption ! hostname r3a enable password 7 016E2C ! enable password !
network-clock base-rate 56k ip subnet-zero no ip domain-lookup ! ! ! controller T1 0 framing esf
linecode b8zs channel-group 0 timeslots 1-24 speed 64 ! interface Ethernet0 ip address
172.16.150.53 255.255.255.0 no ip directed-broadcast ! interface Serial0 no ip address no ip
directed-broadcast no ip mroute-cache shutdown no fair-queue ! interface Serial1 no ip address
no ip directed-broadcast shutdown ! interface Serial0:0 ip address 2.2.2.2 255.255.255.0 no ip
directed-broadcast encapsulation frame-relay IETF ip mroute-cache frame-relay map ip 2.2.2.1 100
broadcast ! interface Switch0 no ip address no ip directed-broadcast encapsulation frame-relay
no fair-queue ! ip classless ip route 0.0.0.0 0.0.0.0 172.16.150.1 no ip http server ! ! ! line
con 0 transport input none line aux 0 line 2 3 line vty 0 4 exec-timeout 0 0 password 7 0236C1C
login ! ! voice-port 1/1 timeouts call-disconnect 0 ! ! endr3a#show fr pvc PVC Statistics for
interface Serial0:0 (Frame Relay DTE) Active Inactive Deleted Static Local 1 0 0 0 Switched 0 0
0 0 Unused 0 0 0 0 DLCI = 100, DLCI USAGE = LOCAL, PVC STATUS = ACTIVE, INTERFACE = Serial0:0
input pkts 140 output pkts 161 in bytes 104560 out bytes 106700 dropped pkts 0 in FECN pkts 0 in
BECN pkts 0 out FECN pkts 0 out BECN pkts 0 in DE pkts 0 out DE pkts 0 out bcast pkts 0 out
bcast bytes 0 pvc create time 02:42:19, last time pvc status changed 01:30:06 PVC Statistics for
interface Switch0 (Frame Relay DTE) r3a#show contr t1 0 T1 0 is up. Applique type is Channelized
T1 Cablelength is long gain36 0db No alarms detected. Slot 3 CSU Serial #08625843 Model TEB
HWVersion 4.70 RX level = -0DB Framing is ESF, Line Code is B8ZS, Clock Source is Line. Data in
current interval (567 seconds elapsed): 0 Line Code Violations, 0 Path Code Violations 0 Slip
Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins 0 Errored Secs, 0 Bursty Err Secs, 0
Severely Err Secs, 0 Unavail Secs Data in Interval 1: 0 Line Code Violations, 0 Path Code
Violations 0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins 0 Errored Secs, 0
Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs Data in Interval 2: 0 Line Code
Violations, 0 Path Code Violations 0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs Data in Interval 3: 0
Line Code Violations, 0 Path Code Violations 0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0
Degraded Mins 0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs Data in
Interval 4: 0 Line Code Violations, 0 Path Code Violations 0 Slip Secs, 0 Fr Loss Secs, 0 Line
Err Secs, 0 Degraded Mins 0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail
Secs Data in Interval 5: 0 Line Code Violations, 0 Path Code Violations 0 Slip Secs, 0 Fr Loss
Secs, 0 Line Err Secs, 0 Degraded Mins 0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs,
0 Unavail Secs Data in Interval 6: 0 Line Code Violations, 0 Path Code Violations 0 Slip Secs,
0 Fr Loss Secs,
```

0 Line Err Secs, 0 Degraded Mins 0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs Data in Interval 7: 0 Line Code Violations, 0 Path Code Violations 0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins 0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs Data in Interval 8: 0 Line Code Violations, 0 Path Code Violations 0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins 0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs Data in Interval 9: 0 Line Code Violations, 0 Path Code Violations 0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins 0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs Data in Interval 10: 0 Line Code Violations, 0 Path Code Violations 0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins 0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs Data in Interval 11: 7 Line Code Violations, 0 Path Code Violations 2 Slip Secs, 0 Fr Loss Secs, 2 Line Err Secs, 0 Degraded Mins 1 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 866 Unavail Secs Total Data (last 11 15 minute intervals): 7 Line Code Violations, 0 Path Code Violations, 2 Slip Secs, 0 Fr Loss Secs, 2 Line Err Secs, 0 Degraded Mins, 1 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 866 Unavail Secs

r3a#**show interface s0:0** Serial0:0 is up, line protocol is up Hardware is PQUICC Serial Internet address is 2.2.2.2/24 MTU 1500 bytes, BW 1536 Kbit, DLY 20000 usec, reliability 255/255, txload 1/255, rxload 1/255 Encapsulation FRAME-RELAY IETF, crc 16, loopback not set Keepalive set (10 sec) Scramble enabled LMI enq sent 964, LMI stat recvd 966, LMI upd recvd 2, DTE LMI up LMI enq recvd 0, LMI stat sent 0, LMI upd sent 0 LMI DLCI 1023 LMI type is CISCO frame relay DTE FR SVC disabled, LAPF state down Broadcast queue 0/64, broadcasts sent/dropped 0/0, interface broadcasts 0 Last input 00:00:04, output 00:00:04, output hang never Last clearing of "show interface" counters 02:45:12 Input queue: 0/75/0 (size/max/drops); Total output drops: 0 Queueing strategy: weighted fair Output queue: 0/1000/64/0 (size/max total/threshold/drops) Conversations 0/1/256 (active/max active/max total) Reserved Conversations 0/0 (allocated/max allocated) 5 minute input rate 0 bits/sec, 0 packets/sec 5 minute output rate 0 bits/sec, 0 packets/sec 1108 packets input, 118434 bytes, 0 no buffer Received 0 broadcasts, 0 runts, 0 giants, 0 throttles 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort 1133 packets output, 119338 bytes, 0 underruns 0 output errors, 0 collisions, 2 interface resets 0 output buffer failures, 0 output buffers swapped out 0 carrier transitions

注意：由于debug命令生成大量输出，只有在IP网数据流量低时才使用，这样才不会对系统中的其他活动产生负面影响。

```
r3a#debug frame-relay lmi Frame Relay LMI debugging is on Displaying all Frame Relay LMI data
r3a#terminal monitor % Console already monitors r3a# 02:59:35: Serial0:0(out): StEnq, myseq 206,
yourseen 53, DTE up 02:59:35: datagramstart = 0x1C98A18, datagramsize = 13 02:59:35: FR encap =
0xFCF10309 02:59:35: 00 75 01 01 01 03 02 CE 35 02:59:35: 02:59:35: Serial0:0(in): Status, myseq
206 02:59:35: RT IE 1, length 1, type 1 02:59:35: KA IE 3, length 2, yourseen 54, myseq 206 r3a#
02:59:45: Serial0:0(out): StEnq, myseq 207, yourseen 54, DTE up 02:59:45: datagramstart =
0x1C98A18, datagramsize = 13 02:59:45: FR encap = 0xFCF10309 02:59:45: 00 75 01 01 01 03 02 CF
36 02:59:45: 02:59:45: Serial0:0(in): Status, myseq 207 02:59:45: RT IE 1, length 1, type 1
02:59:45: KA IE 3, length 2, yourseen 55, myseq 207
```

[MGX 8220 FRSM-8T1](#)

Summary命令：

- [version](#)
- [dspfeature](#)
- [dspln](#)
- [dspln](#)
- [dspports](#)
- [dspport](#)
- [dspchan](#)

- [dspchan](#)
- [tstcon](#)

```

a1.1.9.FRSM.a > version ***** Cisco Systems, Inc. AXIS FRSM-8P Card ***** Firmware Version =
5.0.13 Backup Boot version = FR8_BT_1.0.02 ASCFRSM Xilinx file = cbslave.h VxWorks (for Cisco
Systems, Inc.) version 5.2 Rev B. Kernel: WIND version 2.4. Made on Wed Jun 21 16:15:40 PDT
2000. Boot line: a1.1.9.FRSM.a > dspfeature Channelized: On Rate Control: On a1.1.9.FRSM.a >
dsplns Line Conn Type Status/Coding Length XmtClock Alarm Stats Type Source Alarm ---- -----
-----
9.1 RJ-48 dsx1ESF Ena/dsx1B8ZS 0-
131 ft LocalTim No No 9.2 RJ-48 dsx1ESF Dis/dsx1B8ZS 0-131 ft LocalTim 9.3 RJ-48 dsx1ESF
Dis/dsx1B8ZS 0-131 ft LocalTim 9.4 RJ-48 dsx1ESF Dis/dsx1B8ZS 0-131 ft LocalTim 9.5 RJ-48
dsx1ESF Dis/dsx1B8ZS 0-131 ft LocalTim 9.6 RJ-48 dsx1ESF Dis/dsx1B8ZS 0-131 ft LocalTim 9.7 RJ-
48 dsx1ESF Dis/dsx1B8ZS 0-131 ft LocalTim 9.8 RJ-48 dsx1ESF Dis/dsx1B8ZS 0-131 ft LocalTim
LineNumOfValidEntries: 8 a1.1.9.FRSM.a > dspln 1 LineNum: 1 LineConnectorType: RJ-48 LineType:
dsx1ESF LineEnable: Enabled LineCoding: dsx1B8ZS LineLength: 0-131 ft LineXmtClockSource:
LocalTiming LineLoopbackCommand: NoLoop LineSendCode: NoCode LineUsedTimeslotsBitMap: 0xffffffff
LineLoopbackCodeDetection: codeDetectDisabled LineBertEnable: Disable LineNumOfValidEntries: 8
a1.1.9.FRSM.a > dsports Port Ena/Speed EQServ SignalType T391 T392 N391 N392 N393 Type AlarI
Ratio -----
----- 9.1.1
Mod/1536k 1 StrataLMI 10 15 6 3 4 frameRel No Number of ports: 1 PortDs0UsedLine1: 0x00ffffff
PortDs0UsedLine2: 0x00000000 PortDs0UsedLine3: 0x00000000 PortDs0UsedLine4: 0x00000000
PortDs0UsedLine5: 0x00000000 PortDs0UsedLine6: 0x00000000 PortDs0UsedLine7: 0x00000000
PortDs0UsedLine8: 0x00000000 PortNumNextAvailable: 155 a1.1.9.FRSM.a > dsport 1 SlotNum: 9
PortLineNum: 1 PortNum: 1 PortRowStatus: Mod PortDs0Speed: 64k PortDs0ConfigBitMap(1stDS0):
0xffffffff(1) PortEqueueServiceRatio: 1 PortFlagsBetweenFrames: 1 PortSpeed: 1536kbps
SignallingProtocolType: StrataLMI AsynchronousMsgs: UPD enabled T391LineIntegrityTimer: 10
T392PollingVerificationTimer: 15 N391FullStatusPollingCounter: 6 N392ErrorThreshold: 3
N393MonitoredEventCount: 4 EnhancedLmi: On PortState: Active PortSignallingState: No Signalling
Failure CLLMEnableStatus: Disable CLLMxmtStatusTimer: 0 portType: frameRelay
PortIngrPercentUtil: 100 PortEgrPercentUtil: 100 PortOversubscribed: False PortSvcStatus:
Disable PortSvcInUse: Not In-Use PortSvcShareLcn: Card-based PortSvcLcnLow: 0 PortSvcLcnHigh: 0
PortSvcDlciLow: 0 PortSvcDlciHigh: 0 PortDs0UsedLine1: 0x00ffffff PortDs0UsedLine2: 0x00000000
PortDs0UsedLine3: 0x00000000 PortDs0UsedLine4: 0x00000000 PortDs0UsedLine5: 0x00000000
PortDs0UsedLine6: 0x00000000 PortDs0UsedLine7: 0x00000000 PortDs0UsedLine8: 0x00000000
PortNumNextAvailable: 164 a1.1.9.FRSM.a > dspchans DLCI Chan EQ I/EQDepth I/EQDEThre I/EECNThre
Fst/ DE Type Alarm -----
-----
9.1.1.100 100 2 65535/65535 32767/32767 6553/6553 Dis/Dis SIW-X No Number of channels: 1
ChanNumNextAvailable: 44 a1.1.9.FRSM.a > dspchan 100 ChanNum: 100 ChanRowStatus: Mod ChanPortNum:
1 ChanDLCI: 100 EgressQSelect: 2 IngressQDepth: 65535 IngressQDEThresh: 32767 IngressQECNThresh:
6553 EgressQDepth: 65535 EgressQDEThresh: 32767 EgressQECNThresh: 6553 DETaggingEnable: Disabled
CIR: 1536000 Bc: 5100 Be: 5100 IBS: 100 ForeSightEnable: Disabled QIR: 4000 MIR: 4000 PIR: 4000
ChanLocalRemoteLpbkState: Disabled ChanTestType: TestOff ChanTestState: Passed ChanRTDresult: 1
ms ChanType: SIW-Xlat ChanFECNmap: setEFCIzero ChanDEtoCLPmap: mapCLP ChanCLPtoDEmap: mapDE
ChanFrConnType: PVC ChanIngrPercentUtil: 100 ChanEgrPercentUtil: 100 ChanEgrSrvRate: 1536000
ChanOvrSubOvrRide: Enabled ChanNumNextAvailable: 45 a1.1.9.FRSM.a > tstcon 100 TestCon in
progress. TestCon Passed.

```

[BPX 8600](#)

Summary命令：

- [dspcnds](#)
- [dspnode](#)
- [dsptrk](#)
- [dsptrkcnf](#)
- [dspcon](#)
- [dspcon](#)
- [dspchstats](#)

- [tstconseg](#)
- [dspalm](#)
- [dspcon - abit](#)
- [在A位报警的dspcon](#)

b3 TRM SuperUser BPX 8600 9.1.18 Sep. 22 2000 17:08 GMT

FrontCard					BackCard					FrontCard					BackCard				
Type	Rev	Type	Rev	Status	Type	Rev	Type	Rev	Status	Type	Rev	Type	Rev	Status	Type	Rev	Type	Rev	Status
1	Empty				9	BXM-155	CDB	MM-4	BA	Standby-T									
2	BNI-T3	CJM	T3-3	BE	Active	10	BXM-155	EJB	MM-4	BA	Standby								
3	BNI155E	DJR	Empty		Standby	11	BNI155E	DJR	MMF-2	AC	Standby								
4	Empty					12	Empty												
5	BXM-T3	CDE	TE3-12BA		Standby	13	BXM-T3	BDY	TE3-12BA		Standby								
6	ASI-T3	CDF	T3-2	BE	Standby	14	Empty												
7	BCC-3	CLM	LM-2	AC	Active	15	ASM	ACC	LMASM	AC	Active								
8	BCC-3	CLM	LM-2	AC	Standby														

Last Command: **dsprcds** b3 TRM SuperUser BPX 8600 9.1.18 Sep. 22 2000 17:08 GMT

BPX 8600 Interface Shelf Information

Trunk	Name	Type	Part Id	Ctrl Id	Alarm
2.1	a1	AXIS	-	-	MIN

Last Command: **dsprnode** b3 TRM SuperUser BPX 8600 9.1.18 Sep. 22 2000 17:09 GMT

TRK	Type	Current Line Alarm Status	Other End
2.1	T3	Clear - OK	a1 (AXIS)

Last Command: **dsprtrks** b3 TRM SuperUser BPX 8600 9.1.18 Sep. 22 2000 17:09 GMT

TRK 2.1 Config	T3	[96000 cps]	BNI-T3 slot: 2
Transmit Rate:	96000		VPC Conns disabled: --
Subrate data rate:	--		Line framing: PLCP
Line DS-0 map:	--		coding: --
Statistical Reserve:	1000	cps	recv impedance: --
Idle code:	7F	hex	cable type:
Max Channels/Port:	--		length: 0-225 ft.
Connection Channels:	2027		Pass sync: Yes
Traffic: V, TS, NTS, FR, FST, CBR, VBR, ABR			Loop clock: No
SVC Vpi Min:	--		HCS Masking: Yes
SVC Channels:	--		Payload Scramble: No
SVC Bandwidth:	--	cps	Frame Scramble: --
Restrict CC traffic:	No		Virtual Trunk Type: --
Link type:	Terrestrial		Virtual Trunk VPI: --
Routing Cost:	10		Deroute delay time: 0 seconds

Last Command: **dsprtrkcnf 2.1** b3 TRM SuperUser BPX 8600 9.1.18 Sep. 22 2000 17:09 GMT

Local Channel	Remote NodeName	Remote Channel	State	Type	Route Avoid COS
					0

2.1.9.100 b3 2.1.10.200 Ok atfr
2.1.10.200 b3 2.1.9.100 Ok atfr

Last Command: **dspscons** b3 TRM SuperUser BPX 8600 9.1.18 Sep. 22 2000
17:09 GMT

Conn: 2.1.9.100 b3 2.1.10.200 atfr Status:OK
PCR(0+1) % Util CDVT(0+1) FBTC SCR MBS PLC
2000/2000 100/100 25000/25000 y 1000/1000 1000/1000 3

Path: Route information not applicable for local connections

b3 BNI-T3 : OK b3 BNI-T3 : OK
Line 2.1 : OK Line 2.1 : OK
OAM Cell RX: Clear NNI : OK
NNI : OK

Conn: 2.1.9.100 b3 2.1.10.200 atfr Status:OK
PCR(0+1) % Util CDVT(0+1) SCR MBS
2000/2000 100/100 25000/25000 1000/1000 1000/1000

Policing VC Qdepth EFCI IBS
3 1280/1280 35/35 1/1

Last Command: **dspscon 2.1.9.100** b3 TRM SuperUser BPX 8600 9.1.18 Sep. 22
2000 17:13 GMT

Local Channel	Remote NodeName	Remote Channel	State	Type	Route Avoid COS O
2.1.9.100	b3	2.1.10.200	Ok	atfr	
2.1.10.200	b3	2.1.9.100	Ok	atfr	

This Command: **dspschstats 2.1.10.200 Channel stats is not supported Enter channel:** b3
TRM SuperUser BPX 8600 9.1.18 Sep. 22 2000 17:10 GMT

Conn: 2.1.9.100 b3 2.1.10.200 atfr Status:OK
PCR(0+1) % Util CDVT(0+1) SCR MBS
2000/2000 100/100 25000/25000 1000/1000 1000/1000

Policing VC Qdepth EFCI IBS
3 1280/1280 35/35 1/1

This Command: **tstconseq 2.1.9.100 Not allowed on feeder trunk endpoints Channel:** !-- When no
corresponding connection exists on the FRSM or AUSM:

b3 TRM SuperUser BPX 8600 9.1.18 Sep. 22 2000 21:46 GMT

Alarm summary (Configured alarm slots: None)

Connections Failed: None
TRK Alarms: None
Line Alarms: None
Cards Failed: None
Slots Alarmed: None

Connection A-bit/AIS Alarms: 2 Missing Cards: None

Remote Node Alarms: None Interface Shelf Alarms: 1 Minor ASM Alarms: None Last Command: **dspsalms**
b3 TRM SuperUser BPX 8600 9.1.18 Sep. 22 2000 21:46 GMT

Local	Remote	Remote	Local	Remote
-------	--------	--------	-------	--------

Channel	NodeName	Channel	State	A-bit	A-bit
2.1.9.100	b3	2.1.10.200	Ok	Failed	Failed
2.1.10.200	b3	2.1.9.100	Ok	Failed	Failed

Last Command: **dspscons -abit b3** TRM SuperUser BPX 8600 9.1.18 Sep. 22
2000 21:47 GMT

```
Conn: 2.1.9.100      b3      2.1.10.200      atfr      Status:OK
      PCR(0+1)    % Util    CDVT(0+1)    FBTC      SCR      MBS      PLC
      2000/2000  100/100  25000/25000  y         1000/1000 1000/1000  3
```

Path: Route information not applicable for local connections

```
b3      BNI-T3      : OK      b3      BNI-T3      : OK
      Line 2.1 : OK      Line 2.1 : OK
      OAM Cell RX: Clear      NNI      : Rmt Segment Failure NNI : Rmt
```

Segment Failure Last Command: **dspscon 2.1.9.100 !---** *After the frame relay side has been configured on the MGX 8220 FRSM:* b3 TRM SuperUser BPX 8600 9.1.18 Sep. 22 2000 21:55 GMT Conn: 2.1.9.100 b3 2.1.10.200 atfr Status:OK PCR(0+1) % Util CDVT(0+1) FBTC SCR MBS PLC 2000/2000 100/100 25000/25000 y 1000/1000 1000/1000 3 Path: Route information not applicable for local connections b3 BNI-T3 : OK b3 BNI-T3 : OK Line 2.1 : OK Line 2.1 : OK OAM Cell RX: Clear NNI : **Rmt Segment Failure** NNI : **OK** Last Command: **dspscon 2.1.9.100 !---** *When both frame relay and ATM sides have been configured on the MGX 8220 FRSM !--- and AUSM:* b3 TRM SuperUser BPX 8600 9.1.18 Sep. 22 2000 21:58 GMT Conn: 2.1.9.100 b3 2.1.10.200 atfr Status:OK PCR(0+1) % Util CDVT(0+1) FBTC SCR MBS PLC 2000/2000 100/100 25000/25000 y 1000/1000 1000/1000 3 Path: Route information not applicable for local connections b3 BNI-T3 : OK b3 BNI-T3 : OK Line 2.1 : OK Line 2.1 : OK OAM Cell RX: Clear NNI : **OK** NNI : **OK** Last Command: **dspscon 2.1.9.100**

相关信息

- [AUSM/B IMA配置和故障排除指南](#)
- [帧中继到ATM服务互工作配置示例](#)
- [7x00 IMA 端口适配器 ATM 链接故障排除](#)
- [Cisco广域网交换解决方案- Cisco Documentation](#)
- [广域网交换产品新的名称和颜色指南](#)
- [软件中心-广域网交换软件\(仅限注册用户\)](#)
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