



Bridged RFC 1483 Encapsulated Traffic over ATM SVCs

The Bridged RFC 1483 Encapsulated Traffic over ATM SVCs feature allows you to send bridged RFC 1483 encapsulated packets over ATM switched virtual circuits (SVCs).

Feature Specifications for the Bridged RFC 1483 Encapsulated Traffic over ATM SVCs Feature

Release	Modification
12.2(15)T	This feature was introduced.
12.2(27)SBA	This feature was integrated into Cisco IOS Release 12.2(27)SBA.

Finding Support Information for Platforms and Cisco IOS Software Images

Use Cisco Feature Navigator to find information about platform support and Cisco IOS software image support. Access Cisco Feature Navigator at <http://www.cisco.com/go/fn>. You must have an account on Cisco.com. If you do not have an account or have forgotten your username or password, click **Cancel** at the login dialog box and follow the instructions that appear.

Contents

- [Prerequisites for Bridged RFC 1483 Encapsulated Traffic over ATM SVCs, page 2](#)
- [Restrictions for Bridged RFC 1483 Encapsulated Traffic over ATM SVCs, page 2](#)
- [Information About Bridged RFC 1483 Encapsulated Traffic over ATM SVCs, page 2](#)
- [How to Configure Bridged RFC 1483 Encapsulated Traffic over ATM SVCs, page 3](#)
- [Configuration Examples for Bridged RFC 1483 Encapsulated Traffic over ATM SVCs, page 6](#)
- [Additional References, page 8](#)
- [Command Reference, page 9](#)
- [Glossary, page 10](#)



Corporate Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

Copyright © 2003, 2005 Cisco Systems, Inc. All rights reserved.

Prerequisites for Bridged RFC 1483 Encapsulated Traffic over ATM SVCs

You need to have support for a form of bridging such as integrated routing and bridging (IRB).

Restrictions for Bridged RFC 1483 Encapsulated Traffic over ATM SVCs

- Although for certain situations bridging traffic over an ATM SVC or permanent virtual circuit (PVC) is more efficient than routing the bridged traffic, it is not a scalable solution.
- Only fast switching and process switching are supported.

Information About Bridged RFC 1483 Encapsulated Traffic over ATM SVCs

Before configuring and implementing the Bridged RFC 1483 Encapsulated Traffic over ATM SVCs feature, you should understand the following concepts:

- [Benefits of Bridged RFC 1483 Encapsulated Traffic over ATM SVCs, page 2](#)
- [Need for SVCs to Be Triggered, page 2](#)

Benefits of Bridged RFC 1483 Encapsulated Traffic over ATM SVCs

Prior to Cisco IOS Release 12.2(13)T, bridged ATM interface support was limited to ATM PVCs. When an ATM interface was part of a bridge group, the bridged traffic could be passed only on the PVCs on that interface. The Bridged RFC 1483 Encapsulated Traffic over ATM SVCs feature allows for bridged RFC 1483 encapsulated traffic to be passed on the ATM SVCs.

Because PVCs are statically configured along the entire path between the end systems, it would not be suitable to route bridged encapsulated traffic over them when the user wants to configure the VCs dynamically and tear down the VCs when there is no traffic.

Need for SVCs to Be Triggered

Unlike PVCs, SVCs need to be triggered by ongoing traffic and might be brought down after they have been idle for some time. The Bridged RFC 1483 Encapsulated Traffic over ATM SVCs feature allows for the SVC to be triggered if down, and pass to the traffic on to the SVCs belonging to the bridged ATM interface.

How to Configure Bridged RFC 1483 Encapsulated Traffic over ATM SVCs

This section contains the following procedures:

- [Configuring Bridging on the Router, page 3](#)
- [Configuring an SVC to Carry Bridged Traffic, page 4](#)
- [Configuring the Interface as Part of the Bridge Group, page 5](#)

Configuring Bridging on the Router

This section provides the steps necessary to configure bridging on the router.

SUMMARY STEPS

1. **enable**
2. **configure**
3. **bridge irb**
4. **bridge *bridge-group* protocol {dec | ibm | ieee | vlan-bridge}**
5. **bridge *bridge-group* route protocol**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.
Step 3	bridge irb Example: Router(config)# bridge irb	Enables the Cisco IOS software to route a given protocol between routed interfaces and bridge groups or to route a given protocol between bridge groups.

	Command or Action	Purpose
Step 4	<code>bridge bridge-group protocol {dec ibm ieee vlan-bridge}</code> Example: Router(config)# bridge 5 protocol ieee	Defines the type of Spanning-Tree Protocol.
Step 5	<code>bridge bridge-group route protocol</code> Example: Router(config)# bridge 5 route ip	Enables the routing of a specified protocol in a specified bridge group.

Configuring an SVC to Carry Bridged Traffic

This section provides the steps necessary to configure an SVC to carry bridged traffic.

SUMMARY STEPS

1. **enable**
2. **configure**
3. **interface** *type slot/pot.subinterface-number multipoint*
4. **atm esi-address** *esi.selector*
5. **svc** [*name*] [**nsap** *address*] [**ces**]
6. **encapsulation aal5encap** [**virtual-template** *number*]
7. **protocol** *protocol {protocol-address | inarp} [[no] broadcast]*

DETAILED STEPS

	Command or Action	Purpose
Step 1	<code>enable</code> Example: Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	<code>configure terminal</code> Example: Router# configure terminal	Enters global configuration mode.
Step 3	<code>interface type slot/pot.subinterface-number multipoint</code> Example: Router(config)# interface ATM1/0.5 multipoint	Configures an interface type and enters interface configuration mode. <ul style="list-style-type: none"> • Configures an ATM multipoint subinterface.

	Command or Action	Purpose
Step 4	<pre>atm esi-address esi.selector</pre> <p>Example: Router(config-if)# atm esi-address AAAAAAAAAAAAA.00 </p>	<p>Enables the end system identifier (ESI) and selector byte fields of the ATM NSAP address.</p> <ul style="list-style-type: none"> Configures an ATM end system address.
Step 5	<pre>svc [name] [nsap address] [ces]</pre> <p>Example: Router(config-if)# svc bridged_1483 nsap 47.009181000000444455556666.BBBBBBBBBBBB.00 </p>	<p>Creates an ATM SVC and specifies the destination network service access point (NSAP) address on an interface or subinterface.</p>
Step 6	<pre>encapsulation {aal2 aal5auto aal5autopp aal5ciscoppp aal5mux protocol aal5nlpid aal5snap} [virtual-template number]</pre> <p>Example: Router(config-if)# encapsulation aal5snap </p>	<p>Configures the ATM adaptation layer (AAL) and encapsulation type for an ATM PVC, SVC, VC class, or VC bundle.</p> <ul style="list-style-type: none"> Configures aalsnap encapsulation on the SVC.
Step 7	<pre>protocol protocol {protocol-address inarp} [[no] broadcast]</pre> <p>Example: Router(config-if)# protocol bridge broadcast </p>	<p>Configures a static map for an ATM PVC, SVC, or VC class or enables Inverse Address Resolution Protocol (ARP) or Inverse ARP broadcasts on an ATM PVC.</p> <ul style="list-style-type: none"> Configures a static map for the bridge protocol.

Configuring the Interface as Part of the Bridge Group

This section provides the steps necessary to configure the interface as part of the bridge group.

SUMMARY STEPS

1. **enable**
2. **configure**
3. **interface** *type slot/port*
4. **bridge-group** *bridge-group*

DETAILED STEPS

	Command or Action	Purpose
Step 1	<pre>enable</pre> <p>Example: Router> enable </p>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> Enter your password if prompted.
Step 2	<pre>configure terminal</pre> <p>Example: Router# configure terminal </p>	<p>Enters global configuration mode.</p>

	Command or Action	Purpose
Step 3	<code>interface type slot/port</code> Example: Router(config)# interface GigabitEthernet 0/0	Configures an interface type and enters interface configuration mode.
Step 4	<code>bridge-group bridge-group</code> Example: Router(config-if)# bridge-group 5	Associates the interface with an existing bridge group.

Configuration Examples for Bridged RFC 1483 Encapsulated Traffic over ATM SVCs

This section provides the following configuration example:

- [ATM SVCs Using IRB Example, page 6](#)

ATM SVCs Using IRB Example

Router A and Router B have bridge groups containing an Ethernet and an ATM interface. As shown in [Figure 1](#), the traffic arriving on the Ethernet interface on Router A is bridged across the ATM network and reaches the Ethernet interface on Router B.

Figure 1 RFC 1483 Traffic over an ATM Network



The following configuration example shows ATM SVCs being configured to use IRB.

Configuration for Router A

```
!
hostname Router A
!
bridge irb
!
!
interface GigabitEthernet0/0
no ip address
duplex auto
speed auto
!
interface GigabitEthernet0/0.5
encapsulation dot1Q 5
bridge-group 5
!
interface ATM1/0
no ip address
no atm ilmi-keepalive
pvc signal 0/5 qsaal
```

```

!
pvc ilmi 0/16 ilmi
!
!
interface ATM1/0.5 multipoint
 atm esi-address AAAAAAAAAAAA.00
!
 svc bridged_1483 nsap 47.009181000000444455556666.BBBBBBBBBBBB.00
  encapsulation aal5snap
  protocol bridge broadcast
!
 bridge-group 5
!
!
interface BVI5
 ip address 10.0.5.1 255.255.255.0
!
 bridge 5 protocol ieee
 bridge 5 route ip
!

```

Configuration for Router B

```

!
hostname Router B
!
bridge irb
!
!
interface GigabitEthernet0/0
 no ip address
 duplex auto
 speed auto
!
interface GigabitEthernet0/0.5
 encapsulation dot1Q 5
 bridge-group 5
!
interface ATM1/0
 no ip address
 no atm ilmi-keepalive
 pvc signal 0/5 qsaal
!
 pvc ilmi 0/16 ilmi
!
!
interface ATM1/0.5 multipoint
 atm esi-address BBBBBBBBBBBB.00
!
 svc bridged_1483 nsap 47.009181000000111122223333.AAAAAAAAAAAA.00
  encapsulation aal5snap
  protocol bridge broadcast
!
 bridge-group 5
!
!
interface BVI5
 ip address 10.0.5.2 255.255.255.0
!
 bridge 5 protocol ieee
 bridge 5 route ip
!

```

Additional References

The following sections provide additional references related to the Bridged RFC 1483 Encapsulated Traffic over ATM SVCs feature.

Related Documents

Related Topic	Document Title
ATM routed bridge encapsulation configuration tasks	“Configuring ATM” chapter of the <i>Cisco IOS Wide-Area Networking Configuration Guide</i> , Release 12.2.
ATM commands	“ATM Commands” chapters of the <i>Cisco IOS Wide-Area Networking Command Reference</i> , Release 12.2 T.
Transparent bridging configuration tasks	“Configuring Transparent Bridging” chapter of the <i>Cisco IOS Bridging and IBM Networking Configuration Guide</i> , Release 12.2.
Bridging commands	“Bridging” part of the <i>Cisco IOS Bridging and IBM Networking Command Reference</i> , Volume 1 of 2, Release 12.2 T.

Standards

Standards	Title
None	—

MIBs

MIBs	MIBs Link
	To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL: http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL:

<http://tools.cisco.com/ITDIT/MIBS/servlet/index>

If Cisco MIB Locator does not support the MIB information that you need, you can also obtain a list of supported MIBs and download MIBs from the Cisco MIBs page at the following URL:

<http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>

To access Cisco MIB Locator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions found at this URL:

<http://www.cisco.com/register>

RFCs

RFCs	Title
RFC 1483	<i>Multiprotocol Encapsulation over ATM Adaptation Layer 5</i>

Technical Assistance

Description	Link
Technical Assistance Center (TAC) home page, containing 30,000 pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	http://www.cisco.com/public/support/tac/home.shtml

Command Reference

None.

Glossary

AAL—ATM adaptation layer. Service-dependent sublayer of the data link layer.

ESI—end system identifier.

IRB—integrated routing and bridging. An upper-layer application supported by SS7 for connection setup and teardown.

PVC—permanent virtual circuit.

SVC—switched virtual circuit.

**Note**

Refer to the [Internetworking Terms and Acronyms](#) for terms not included in this glossary.

CCVP, the Cisco logo, and Welcome to the Human Network are trademarks of Cisco Systems, Inc.; Changing the Way We Work, Live, Play, and Learn is a service mark of Cisco Systems, Inc.; and Access Registrar, Aironet, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, CCSP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Enterprise/Solver, EtherChannel, EtherFast, EtherSwitch, Fast Step, Follow Me Browsing, FormShare, GigaDrive, HomeLink, Internet Quotient, IOS, iPhone, IP/TV, iQ Expertise, the iQ logo, iQ Net Readiness Scorecard, iQuick Study, LightStream, Linksys, MeetingPlace, MGX, Networkers, Networking Academy, Network Registrar, PIX, ProConnect, ScriptShare, SMARTnet, StackWise, The Fastest Way to Increase Your Internet Quotient, and TransPath are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or Website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0711R)

Copyright © 2003, 2005 Cisco Systems, Inc. All rights reserved.