Configuring the Multiprotocol over ATM Client

Last Updated: December 4, 2012

The Multiprotocol over ATM (MPOA) client (MPC) involves ingress/egress cache management, data-plane and control-plane virtual circuit connection (VCC) management, MPOA frame processing, and participation in MPOA protocol and MPOA flow detection.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see Bug Search Tool and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Information About the Multiprotocol over ATM Client

MPC Software Module

The MPC software module implements the functionality of the MPC in compliance with the ATM Forum MPOA specification. An MPC identifies packets sent to an MPOA-capable router over the nonbroadcast multi-access (NBMA) network and establishes a shortcut VCC to the egress MPC, if possible. The MPC then routes these packets directly over this shortcut VCC, bypassing the intermediate routers and enabling the fast routing of internetwork-layer packets across an NBMA network. The Catalyst 5000 series switch

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

can be designated as an MPC. If the Catalyst 5000 series switch is configured with an RSM/VIP2 (with an ATM interface) it can be configured as an MPC or an MPS.

A router is usually designated as an MPOA server (MPS), but can also be designated as an MPC. MPC on the router is primarily meant to provide router-initiated and router-terminated shortcuts for non-NBMA networks. For this reason, MPC information in this chapter primarily refers to the Catalyst 5000 series switch, and MPS information refers to the router or the RSM/VIP2 with an ATM interface in a Catalyst 5000 series switch.

How to Configure the Multiprotocol over ATM Client

Configuring the ELAN ID

For MPOA to work properly, an LEC must belong to an ELAN that has a defined ELAN ID.

⚠️

Caution　If an ELAN ID is supplied, make sure both commands use the same elan-id value.

To obtain an ELAN ID, use either of the following commands in LANE database configuration mode.

Note　To configure an MPC on a Catalyst 5000 series ATM module, establish a connection with the ATM module, enter privileged mode, and then enter configuration mode. For information on performing these tasks, refer to the *Catalyst 5000 Series Software Configuration Guide* .

Command or Action	Purpose
Router(lane-config-dat)# **name** *elan-name* **elan-id** *id*	Defines an ELAN ID for the LEC (in LANE database configuration mode).
Router(lane-config-dat)# **lane server-bus ethernet** *elan-name* [**elan-id** *id*]	Configures the LEC with the ELAN ID (in interface configuration mode).

Configuring the MPC

To configure an MPC on your network, perform the steps in this section.

SUMMARY STEPS

1. Router(config)# **mpoa client config name***mpc-name*
2. Router(config-if)# **interface atm** {*mod-num/port-num* | *number* }
3. Router(config-if)# **mpoa client name***mpc-name*
4. Router(config-if)# **interface***atm-num.sub-interface-num*
5. Router(config-if)# **lane client mpoa client name***mpc-name*
6. Repeat Steps 4 and 5 for every LEC to be served by the MPC/MPS.

DETAILED STEPS

	Command or Action	Purpose
Step 1	Router(config)# **mpoa client config name***mpc-name*	In global configuration mode, defines an MPC with a specified name.
Step 2	Router(config-if)# **interface atm** {*mod-num/port-num* | *number* }	In interface configuration mode, specifies the ATM interface to which the MPC is associated.
Step 3	Router(config-if)# **mpoa client name***mpc-name*	In interface configuration mode, attaches an MPC to the ATM interface.
Step 4	Router(config-if)# **interface***atm-num.sub-interface-num*	In interface configuration mode, specifies the ATM interface that contains the LEC to which you will bind the MPC.
Step 5	Router(config-if)# **lane client mpoa client name***mpc-name*	In interface configuration mode, binds a LEC to the specified MPC.
Step 6	Repeat Steps 4 and 5 for every LEC to be served by the MPC/MPS.	

Configuring the MPC Variables

An MPC has to be defined with a specified name before you can change its variables.

To change the variables for an MPC, perform the steps in this section.

SUMMARY STEPS

1. Router(mpoa-client-config)# **mpoa client config name***mps-name*
2. Router(mpoa-client-config)# **atm-address***atm-address*
3. Router(mpoa-client-config)# **shortcut-frame-count***count*
4. Router(mpoa-client-config)# **shortcut-frame-time***time*

DETAILED STEPS

	Command or Action	Purpose
Step 1	Router(mpoa-client-config)# **mpoa client config name***mps-name*	Defines an MPC with the specified name.

	Command or Action	Purpose
Step 2	Router(mpoa-client-config)# **atm-address**_atm-address_	(Optional) Specifies the control ATM address that the MPC should use (when it is associated with a hardware interface).
Step 3	Router(mpoa-client-config)# **shortcut-frame-count**_count_	(Optional) Specifies the maximum number of times a packet can be routed to the default router within shortcut-frame time before an MPOA resolution request is sent.
Step 4	Router(mpoa-client-config)# **shortcut-frame-time**_time_	(Optional) Sets the shortcut-setup frame time for the MPC.

Monitoring and Maintaining the MPC

To monitor and maintain the configuration of an MPC, use the following commands as needed.

SUMMARY STEPS

1. Router# **show mpoa client** [**name**_mpc-name_]
2. Router# **show mpoa client** [**name**_mpc-name_] **cache** [**ingress** | **egress**] [**ip-addr**_ip-addr_]
3. Router# **show mpoa client** [**name**_mpc-name_] **statistics**
4. Router# **clear mpoa client** [**name**_mpc-name_] **cache** [**ingress** | **egress**] [**ip-addr**_ip-addr_]
5. Router# **show mpoa client** [**name**_mpc-name_] [_remote-device_]
6. Router# **show mpoa default-atm-addresses**

DETAILED STEPS

|	Command or Action	Purpose
Step 1	Router# **show mpoa client** [**name**_mpc-name_]	Displays information about a specified MPC or all MPCs.
Step 2	Router# **show mpoa client** [**name**_mpc-name_] **cache** [**ingress**	**egress**] [**ip-addr**_ip-addr_]	Displays ingress and egress cache entries associated with an MPC.
Step 3	Router# **show mpoa client** [**name**_mpc-name_] **statistics**	Displays all the statistics collected by an MPC.
Step 4	Router# **clear mpoa client** [**name**_mpc-name_] **cache** [**ingress**	**egress**] [**ip-addr**_ip-addr_]	Clears cache entries.
Step 5	Router# **show mpoa client** [**name**_mpc-name_] [_remote-device_]	Displays all the MPOA devices that this MPC has learned.
Step 6	Router# **show mpoa default-atm-addresses**	Displays the default ATM addresses for the MPC.

Configuration Examples for the Multiprotocol over ATM Client

Configuring MCP Example

This section contains an example of the commands needed to configure an MPC. The lines beginning with exclamation points (!) are comments explaining the command shown on the subsequent line. The figure below shows an example of how you can configure your system to use MPOA.

Figure 1   *Example of an MPOA Configuration*
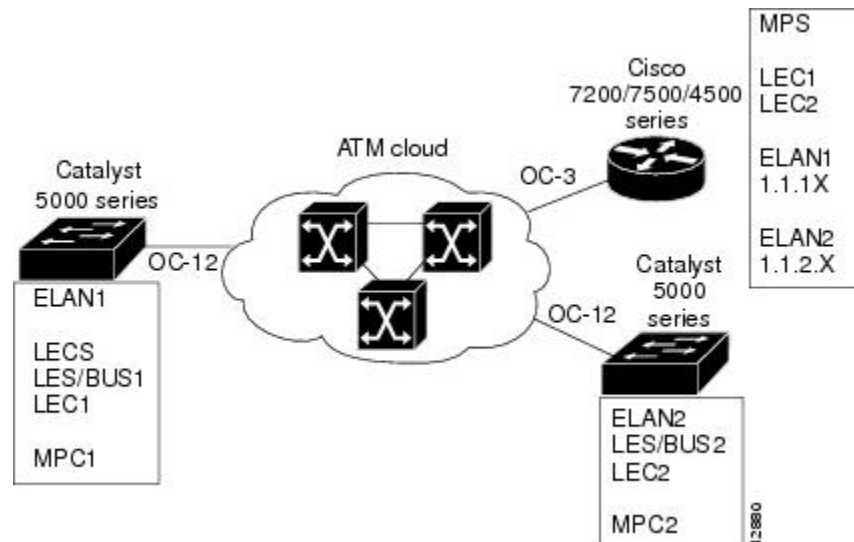
The following example shows how to configure the MPC and attach the MPC to a hardware interface:

```
! Define the MPC "MYMPC"
 mpoa client config name MYMPC
! Leave everything as default
 exit
! Specify the ATM interface to which the MPC is attached
 interface ATM 1/0
! Attach MPC MYMPC to the HW interface
 mpoa client name MYMPC
! Specify the ATM interface that contains the LEC to which you will bind the MPC
 interface atm 1/0.1
! Bind a LANE client to the specified MPC
 lane client mpoa client name MYMPC
! Go back up to global config mode
 exit
```

The following example shows a typical configuration file for the first MPC:

```
Current configuration:
!
version 11.3
! Go to LANE database config mode
 exit
lane database mpoa-test
hostname mpc-1
! Define the ELAN ID and ATM address
name elan1 server-atm-address 47.00918100000000613E5A2F01.006070174821.01
name elan1 elan-id 101
name elan2 server-atm-address 47.00918100000000613E5A2F01.006070174821.02
name elan2 elan-id 102
! Define the MPC "mpc-1"
mpoa client config name mpc-1
interface Ethernet0
```

```
! Go back up to global config mode
 exit
! Specify the ATM interface to which the MPC is attached
interface ATM0
atm pvc 1 0 5 qsaal
atm pvc 2 0 16 ilmi
lane config auto-config-atm-address
lane config database mpoa-test
! Attach MPC mpc-1 to the HW interface
mpoa client name mpc-1
! Specify the ATM interface that contains the LEC to which you will bind the MPC
interface ATM0.1 multipoint
lane server-bus ethernet elan1
! Bind a LANE client to the specified MPC
lane client mpoa client name mpc-1
lane client ethernet 1 elan1
! Go back up to global config mode
 exit
```

The following example shows a typical configuration file for the second MPC:

```
Current configuration:
!
version 11.3
hostname mpc-2
! Go back up to global config mode
 exit
! Define the MPC "mpc-2"
mpoa client config name mpc-2
! Specify the ATM interface to which the MPC is attached
interface ATM0
atm pvc 1 0 5 qsaal
atm pvc 2 0 16 ilmi
mpoa client name mpc-2
! Specify the ATM interface that contains the LEC to which you will bind the MPC
interface ATM0.1 multipoint
lane server-bus ethernet elan2
lane client mpoa client name mpc-2
lane client ethernet 2 elan2
! Go back up to global config mode
 exit
```

Additional References

The following sections provide references related to the Configuring the Multiprotocol over ATM Client feature.

Related Documents

Related Topic	Document Title
ATM commands	*Cisco IOS Asynchronous Transfer Mode Command Reference*

Standards

Standard	Title
None	--

MIBs

MIB	MIBs Link
None	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFC	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	--

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/techsupport

Feature Information for the Multiprotocol over ATM Client

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 1   *Feature Information for the Multiprotocol over ATM Client*

Feature Name	Releases	Feature Information
Multiprotocol over ATM Client	12.0(1) 12.1(1)E	The Multiprotocol over ATM (MPOA) client (MPC) involves ingress/egress cache management, data-plane and control-plane virtual circuit connection (VCC) management, MPOA frame processing, and participation in MPOA protocol and MPOA flow detection. The following commands were introduced or modified: **clear mpoa client cache**, **debug mpoa client**, **lane client mpoa client name**, **mpoa client config name**, **mpoa client name**, **show mpoa client**, **show mpoa client cache**, **show mpoa client statistics**.