

clear appletalk arp

To delete all entries or a specified entry from the AARP table, use the **clear appletalk arp** command in EXEC mode.

```
clear appletalk arp [network.node]
```

Syntax Description	<i>network.node</i>	(Optional) AppleTalk network address to be deleted from the AARP table. The argument <i>network</i> is the 16-bit network number in the range 0 to 65279. The argument <i>node</i> is the 8-bit node number in the range 0 to 254. Both numbers are decimal.
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Command Modes	EXEC
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Command History	Release	Modification
	10.0	This command was introduced.

Examples The following example deletes all entries from the AARP table:

```
clear appletalk arp
```

Related Commands	Command	Description
	show appletalk arp	Displays the entries in the ARP cache.

clear appletalk neighbor

To delete all entries or a specified entry from the neighbor table, use the **clear appletalk neighbor** command in EXEC mode.

clear appletalk neighbor [*neighbor-address*]

Syntax Description	<i>neighbor-address</i>	(Optional) Network address of the neighboring router to be deleted from the neighbor table. The address is in the format <i>network.node</i> . The argument <i>network</i> is the 16-bit network number in the range 1 to 65279. The argument <i>node</i> is the 8-bit node number in the range 0 to 254. Both numbers are decimal.
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Command Modes	EXEC
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Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines You cannot clear the entry for an active neighbor, that is, for a neighbor that still has RTMP connectivity.

Examples The following example deletes the neighboring router 1.129 from the neighbor table:

```
clear appletalk neighbor 1.129
```

Related Commands	Command	Description
	show appletalk neighbors	Displays information about the AppleTalk routers that are directly connected to any of the networks to which this router is directly connected.

clear appletalk route

To delete entries from the routing table, use the **clear appletalk route** command in EXEC mode.

```
clear appletalk route [network]
```

Syntax Description	<i>network</i> (Optional) Number of the network to which the route provides access.
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Command Modes	EXEC
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Command History	Release	Modification
	10.0	This command was introduced.

Examples	The following example deletes the route to network 1:
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```
clear appletalk route 1
```

Related Commands	Command	Description
	show appletalk route	Displays all entries or specified entries in the AppleTalk routing table.

clear appletalk traffic

To reset AppleTalk traffic counters, use the **clear appletalk traffic** command in EXEC mode.

clear appletalk traffic

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Examples The following is sample output after a **clear appletalk traffic** command was executed:

```
Router# clear appletalk traffic
Router# show appletalk traffic

AppleTalk statistics:
  Rcvd:  0 total, 0 checksum errors, 0 bad hop count
        0 local destination, 0 access denied
        0 for MacIP, 0 bad MacIP, 0 no client
        0 port disabled, 0 no listener
        0 ignored, 0 martians
  Bcast: 0 received, 0 sent
  Sent:  0 generated, 0 forwarded, 0 fast forwarded, 0 loopback
        0 forwarded from MacIP, 0 MacIP failures
        0 encapsulation failed, 0 no route, 0 no source
  DDP:   0 long, 0 short, 0 macip, 0 bad size
  NBP:   0 received, 0 invalid, 0 proxies
        0 replies sent, 0 forwards, 0 lookups, 0 failures
  RTMP:  0 received, 0 requests, 0 invalid, 0 ignored
        0 sent, 0 replies
  EIGRP: 0 received, 0 hellos, 0 updates, 0 replies, 0 queries
        0 sent, 0 hellos, 0 updates, 0 replies, 0 queries
        0 invalid, 0 ignored
  ATP:   0 received
  ZIP:   0 received, 0 sent, 0 netinfo
  Echo:  0 received, 0 discarded, 0 illegal
        0 generated, 0 replies sent
  Responder: 0 received, 0 illegal, 0 unknown

AppleTalk statistics:
  0 replies sent, 0 failures
  AARP:  0 requests, 0 replies, 0 probes
        0 martians, 0 bad encapsulation, 0 unknown
        0 sent, 0 failures, 0 delays, 0 drops
  Lost:  0 no buffers
  Unknown: 0 packets
  Discarded: 0 wrong encapsulation, 0 bad SNAP discriminator
```

For explanation of the fields shown in the preceding example, see the **show appletalk traffic** command later in this chapter.

Related Commands

Command	Description
show appletalk macip-traffic	Displays statistics about MacIP traffic through the router.
show appletalk traffic	Displays statistics about AppleTalk traffic.

clear smrp mcache

To remove all fast-switching entries in the Sample Multicast Routing Protocol (SMRP) fast-switching cache table, use the **clear smrp mcache** command in EXEC mode.

clear smrp mcache

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.1	This command was introduced.

Usage Guidelines Use this command to clear the SMRP fast-switching cache table. The SMRP fast-switching cache table contains the information needed to fast switch SMRP data packets. It is usually unnecessary to clear the table; however, you can do so to repopulate it or to clear a corrupted entry.



Note Using this command clears the table of all entries, not just a single entry.

Examples The following example shows the fast-switching cache table before and after the **clear smrp mcache** command clears the table of entries:

```
Router# show smrp mcache

SMRP Multicast Fast Switching Cache
Group      In Parent      Child      MAC Header (Top)
Address    Use Interface  Interface(s) Network Header (Bottom)
-----
AT 11.121  Y  Ethernet0    Ethernet3  090007400b7900000c1740db
                                001fed750000002aff020a0a0a
AT 11.122  Y  Ethernet0    Ethernet3  090007400b7a00000c1740db
                                001f47750000002aff020a0a0a
AT 11.123  Y  Ethernet0    Ethernet1  090007400b7b00000c1740d9
                                001fe77500000014ff020a0a0a
                                Ethernet3  090007400b7b00000c1740db
                                001ffd750000002aff020a0a0a
AT 11.124  N  Ethernet0    Ethernet1  090007400b7c00000c1740d9
                                001fef7500000014ff020a0a0a

Router# clear smrp mcache
Router# show smrp mcache

SMRP Multicast Fast Switching Cache
Group      In Parent      Child      MAC Header (Top)
Address    Use Interface  Interface(s) Network Header (Bottom)
-----
```

Related Commands

Command	Description
show smrp mcache	Displays the SMRP fast-switching cache table.

show appletalk access-lists

To display the AppleTalk access lists currently defined, use the **show appletalk access-lists** user command in EXEC mode.

show appletalk access-lists

Syntax Description This command has no arguments or keywords.

Command Modes User EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Examples The following is sample output from the **show appletalk access-lists** command:

```
Router> show appletalk access-lists

AppleTalk access list 601:
    permit zone ZoneA
    permit zone ZoneB
    deny additional-zones
    permit network 55
    permit network 500
    permit cable-range 900-950
    deny includes 970-990
    permit within 991-995
    deny other-access
```

Table 4 describes fields shown in the display.

Table 4 *show appletalk access-lists Field Descriptions*

Field	Description
AppleTalk access list 601:	Number of the AppleTalk access lists.
permit zone deny zone	Indicates whether access to an AppleTalk zone has been explicitly permitted or denied with the access-list zone command.
permit additional-zones deny additional-zones	Indicates whether additional zones have been permitted or denied with the access-list additional-zones command.
permit network deny network	Indicates whether access to an AppleTalk network has been explicitly permitted or denied with the access-list network command.
permit cable-range deny cable-range	Indicates the cable ranges to which access has been permitted or denied with the access-list cable-range command.

Table 4 show appletalk access-lists Field Descriptions (continued)

Field	Description
permit includes deny includes	Indicates the cable ranges to which access has been permitted or denied with the access-list includes command.
permit within deny within	Indicates the additional cable ranges to which access has been permitted or denied with the access-list within command.
permit other-access deny other-access	Indicates whether additional networks or cable ranges have been permitted or denied with the access-list other-access command.

Related Commands

Command	Description
access-list additional-zones	Defines the default action to take for access checks that apply to zones.
access-list cable-range	Defines an AppleTalk access list for a cable range (for extended networks only).
access-list includes	Defines an AppleTalk access list that overlaps any part of a range of network numbers or cable ranges (for both extended and nonextended networks).
access-list nbp	Defines an AppleTalk access list entry for a particular NBP named entity, class of NBP named entities, NBP packet type, or NBP named entities belonging to a specific zone.
access-list network	Defines an AppleTalk access list for a single network number (that is, for a nonextended network).
access-list other-access	Defines the default action to take for subsequent access checks that apply to networks or cable ranges.
access-list other-nbps	Defines the default action to take for access checks that apply to NBP packets from named entities not otherwise explicitly denied or permitted.
access-list within	Defines an AppleTalk access list for an extended or a nonextended network whose network number or cable range is included entirely within the specified cable range.
access-list zone	Defines an AppleTalk access list that applies to a zone.
appletalk access-group	Assigns an access list to an interface.
appletalk distribute-list in	Filters routing updates received from other routers over a specified interface.
appletalk distribute-list out	Filters routing updates sent to other routers.
appletalk getzonelist-filter	Filters GZL replies.

show appletalk adjacent-routes

To display routes to networks that are directly connected or that are one hop away, use the **show appletalk adjacent-routes** command in privileged EXEC mode.

show appletalk adjacent-routes

Syntax Description This command has no arguments or keywords.

Command Modes Privileged EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines The **show appletalk adjacent-routes** command provides a quick overview of the local environment that is especially useful when an AppleTalk internetwork consists of a large number of networks (typically, more than 600 networks).

You can use information provided by this command to determine if any local routes are missing or are misconfigured.

Examples The following is sample output from the **show appletalk adjacent-routes** command:

```
Router# show appletalk adjacent-routes

Codes: R - RTMP derived, E - EIGRP derived, C - connected, S - static, P - proxy,
67 routes in internet

R Net 29-29 [1/G] via gatekeeper, 0 sec, Ethernet0, zone Engineering
C Net 2501-2501 directly connected, Ethernet1, no zone set
C Net 4160-4160 directly connected, Ethernet0, zone Low End SW Lab
C Net 4172-4172 directly connected, TokenRing0, zone Low End SW Lab
R Net 6160 [1/G] via urk, 0 sec, TokenRing0, zone Low End SW Lab
```

Table 5 describes the fields shown in the display.

Table 5 *show appletalk adjacent-routes Field Descriptions*

Field	Description
Codes:	Codes defining source of route.
R - RTMP derived	Route derived from an RTMP update.
E - EIGRP derived	Route derived from an Enhanced IGRP.
C - Connected	Directly connected network RTMP update.
S - Static	Static route.
P - Proxy	Proxy route.

Table 5 *show appletalk adjacent-routes Field Descriptions (continued)*

Field	Description
67 routes in internet	Total number of known routes in the AppleTalk network.
Net 29-29	Cable range or network to which the route goes.
[1/G]	Hop count, followed by the state of the route. Possible values for state include the following: <ul style="list-style-type: none"> • G—Good (update has been received within the last 10 seconds) • S—Suspect (update has been received more than 10 seconds ago but less than 20 seconds ago) • B—Bad (update was received more than 20 seconds ago)
via	NBP registered name or address of the router that sent the routing information.
0 sec	Time, in seconds, since information about this network cable range was last received.
directly connected	Indicates that the network or cable range is directly connected to the router.
Ethernet0	Possible interface through which updates to this NBP registered name or address will be sent.
zone	Zone name assigned to the network or cable range sending this update.

show appletalk arp

To display the entries in the ARP cache, use the **show appletalk arp** command in privileged EXEC mode.

show appletalk arp

Syntax Description This command has no arguments or keywords.

Command Modes Privileged EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines ARP establishes associates between network addresses and hardware (MAC) addresses. This information is maintained in the ARP cache.

Examples The following is sample output from the **show appletalk arp** command:

```
Router# show appletalk arp
```

Address	Age (min)	Type	Hardware Addr	Encap	Interface
2000.1	-	Hardware	0000.0c04.1111	SNAP	Ethernet1
2000.2	0	Dynamic	0000.0c04.2222	SNAP	Ethernet1
2000.3	0	Dynamic	0000.0c04.3333	SNAP	Ethernet3
2000.4	-	Hardware	0000.0c04.4444	SNAP	Ethernet3

Table 6 describes the fields shown in the display.

Table 6 *show appletalk arp Field Descriptions*

Field	Description
Address	AppleTalk network address of the interface.
Age (min)	Time, in minutes, that this entry has been in the ARP table. Entries are purged after they have been in the table for 240 minutes (4 hours). A hyphen indicates that this is a new entry.

Table 6 *show appletalk arp Field Descriptions (continued)*

Field	Description
Type	<p>Indicates how the ARP table entry was learned. It can be one of the following:</p> <ul style="list-style-type: none"> • Dynamic—Entry was learned via AARP. • Hardware—Entry was learned from an adapter in the router. • Pending—Entry for a destination for which the router does not yet know the address. When a packet requests to be sent to an address for which the router does not yet have the MAC-level address, the Cisco IOS software creates an AARP entry for that AppleTalk address, then sends an AARP Resolve packet to get the MAC-level address for that node. When the software gets the response, the entry is marked “Dynamic.” A pending AARP entry times out after 1 minute.
Hardware Addr	MAC address of this interface.
Encap	<p>Encapsulation type. It can be one of the following:</p> <ul style="list-style-type: none"> • ARPA—Ethernet-type encapsulation • Subnetwork Access Protocol (SNAP)—IEEE 802.3 encapsulation
Interface	Type and number of the interface.

show appletalk aarp events

To display the pending events in the AARP update-events queue, use the **show appletalk aarp events** command in privileged EXEC mode.

show appletalk aarp events

Syntax Description This command has no arguments or keywords.

Command Modes Privileged EXEC

Command History	Release	Modification
	10.3	This command was introduced.

Examples The following is sample output from the **show appletalk aarp events** command:

```
Router# show appletalk aarp events
```

```
100-100, NDC EVENT pending
17043-17043, ND EVENT pending
```

Table 7 explains the fields shown in the display.

Table 7 *show appletalk aarp events Field Descriptions*

Field	Description
100-100	Network number or cable range.
NDC EVENT pending	Type of update event that is pending.

show appletalk aurp topology

To display entries in the AURP private path database, which consists of all paths learned from exterior routers, use the **show appletalk aurp topology** command in privileged EXEC mode.

show appletalk aurp topology

Syntax Description This command has no arguments or keywords.

Command Modes Privileged EXEC

Command History	Release	Modification
	10.3	This command was introduced.

Examples The following is sample output from the **show appletalk aurp topology** command:

```
Router# show appletalk aurp topology

30
    via Tunnel0, 3 hops
80
    via Tunnel0, 3 hops
101-101
    via Tunnel0, 8 hops
102-102
    via Tunnel0, 8 hops
103-103
    via Tunnel0, 8 hops
104-104
    via Tunnel0, 8 hops
105-105
    via Tunnel0, 8 hops
108-108
    via Tunnel0, 8 hops
109-109
    via Tunnel0, 9 hops
120-120
    via Tunnel0, 10 hops
125-125
    via Tunnel0, 8 hops
169-169
    via Tunnel0, 7 hops
201-205
    via Tunnel0, 4 hops
```

Table 8 describes the fields shown in the display.

Table 8 *show appletalk aarp topology Field Descriptions*

Field	Description
30	AppleTalk network number or cable range.
via Tunnel0	Interface used to reach the network.
3 hops	Number of hops to the network.

show appletalk cache

To display the routes in the AppleTalk fast-switching table on an extended AppleTalk network, use the **show appletalk cache** command in EXEC mode.

show appletalk cache

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines The **show appletalk cache** command displays information for all fast-switching route cache entries, regardless of whether they are valid.

Route entries are removed from the fast-switching cache if one of the following occurs:

- A route that was used has been deleted but has not yet been marked bad.
- A route that was used has gone bad.
- A route that was used has been replaced with a new route with a better metric.
- The state of route to a neighbor has changed from suspect to bad.
- The hardware address corresponding to a node address in the AARP cache has changed.
- The node address corresponding to a hardware address has changed.
- The ARP cache has been flushed.
- An ARP cache entry has been deleted.
- You have entered the **no appletalk routing** command, the **appletalk route-cache** command, or an **access-list** command.
- The encapsulation on the line has changed.
- An interface has become operational or nonoperational.

Examples The following is sample output from the **show appletalk cache** command:

```
Router> show appletalk cache

AppleTalk Routing Cache, * = active entry, cache version is 227
Destination      Interface      MAC Header
*      29.0      Ethernet0      00000C00008200000C00D8DD
* 1544.000      Ethernet1      AA000400013400000C00E8C809B84BE02
*   33.000      Ethernet1      AA000400013400000C00E8C809B84BE02
```

The following is sample output from the **show appletalk cache** command when AppleTalk load balanced is enabled. The output displayed shows additional MAC headers for parallel paths (for example, 6099.52):

```
Router> show appletalk cache

Appletalk Routing cache, * = active entry, cache version is 11021
Destination      Interface      MAC Header
*      82.36      Ethernet1/4    00000CF366A600000C12C52D
      17043.208   Ethernet1/5    00000C367B4000000C12C52E
*      60099.52    Ethernet1/5    00000C367B4000000C12C52E
                        Ethernet1/2    00000C367B3D00000C12C52B
                        Ethernet1/3    00000C367B3E00000C12C52C
```

Table 9 describes the fields shown in the display.

Table 9 *show appletalk cache Field Descriptions*

Field	Description
*	Indicates the entry is valid.
cache version is	Version number of the AppleTalk fast-switching cache.
Destination	Destination network for this packet.
Interface	Router interface through which this packet is transmitted.
MAC Header	First bytes of this packet's MAC header.

Related Commands

Command	Description
appletalk maximum-paths	Defines the maximum number of equal-cost paths the router should use when balancing the traffic load.
appletalk route-cache	Enables fast switching on all supported interfaces.

show appletalk domain

To display all domain-related information, use the **show appletalk domain** command in EXEC mode.

show appletalk domain [*domain-number*]

Syntax Description	<i>domain-number</i>	(Optional) Number of an AppleTalk domain about which to display information. It can be a decimal integer from 1 to 1000000.
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Command Modes	EXEC
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Command History	Release	Modification
	10.3	This command was introduced.

Usage Guidelines If you omit the argument *domain-number*, the **show appletalk domain** command displays information about all domains.

Examples The following is sample output from the **show appletalk domain** command:

```
Router# show appletalk domain

  AppleTalk  Domain  Information:

  Domain 1      Name : Xerxes
  -----
  State                : Active
  Inbound remap range  : 100-199
  Outbound remap range : 200-299
  Hop reduction        : OFF
  Interfaces in domain :
    Ethernet1         : Enabled

  Domain 2      Name : Desdemona
  -----
  State                : Active
  Inbound remap range  : 300-399
  Outbound remap range : 400-499
  Hop reduction        : OFF
  Interfaces in domain :
    Ethernet3         : Enabled
```

The following is sample output from the **show appletalk domain** command when you specify a domain number:

```
Router# show appletalk domain 1

      AppleTalk  Domain  Information:

      Domain 1      Name : Xerxes
-----
      State                : Active
      Inbound remap range  : 100-199
      Outbound remap range : 200-299
      Hop reduction        : OFF
      Interfaces in domain :
          Ethernet1       : Enabled
```

Table 10 describes the fields shown in the displays.

Table 10 *show appletalk domain Field Descriptions*

Field	Description
Domain	Number of the domain as specified with the appletalk domain name global configuration command.
Name	Name of the domain as specified with the appletalk domain name global configuration command.
State	Status of the domain. It can be either Active or Nonactive.
Inbound remap range	Inbound mapping range as specified with the appletalk domain remap-range in global configuration command.
Outbound remap range	Outbound mapping range as specified with the appletalk domain remap-range out global configuration command.
Hop reduction	Indicates whether hop reduction has been enabled with the appletalk domain hop-reduction global configuration command. It can be either OFF or ON.
Interfaces in domain	Indicates which interfaces are in the domain as specified with the appletalk domain-group interface configuration command and whether they are enabled.

Related Commands

Command	Description
appletalk domain-group	Assigns a predefined domain number to an interface.
appletalk domain hop-reduction	Reduces the hop-count value in packets traveling between segments of a domain.
appletalk domain name	Creates a domain and assigns it a name and number.
appletalk domain remap-range	Remaps ranges of AppleTalk network numbers or cable ranges between two segments of a domain.

show appletalk eigrp interfaces

To display information about interfaces configured for Enhanced IGRP, use the **show appletalk eigrp interfaces** command in EXEC mode.

```
show appletalk eigrp interfaces [type number]
```

Syntax Description

<i>type</i>	(Optional) Interface type.
<i>number</i>	(Optional) Interface number.

Command Modes

EXEC

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

Use the **show appletalk eigrp interfaces** command to determine on which interfaces Enhanced IGRP is active and to find out information about Enhanced IGRP relating to those interfaces.

If an interface is specified, only that interface is displayed. Otherwise, all interfaces on which Enhanced IGRP is running are displayed.

Examples

The following is sample output from the **show appletalk eigrp interfaces** command:

```
Router> show appletalk eigrp interfaces
AT/EIGRP interfaces for process 1, router id 24096

Interface    Peers    Xmit Queue    Mean    Pacing Time    Multicast    Pending
             Un/Reliable  SRTT          Un/Reliable  Flow Timer   Routes
-----
Di0          0         0/0           0        11/434         0           0
Et0          1         0/0           337      0/10          0           0
SE0:1.16    1         0/0           10       1/63          103         0
Tu0          1         0/0           330      0/16          0           0
```

Table 11 describes the fields shown in the display.

Table 11 show appletalk eigrp interfaces Field Descriptions

Field	Description
process 1	Autonomous system number of the process.
router id	Identification number of the router, as configured in the appletalk routing eigrp command.
Interface	Interface name.
Peers	Number of neighbors on the interface.
Xmit Queue	Count of unreliable and reliable packets queued for transmission.

Table 11 *show appletalk eigrp interfaces Field Descriptions (continued)*

Field	Description
Mean SRTT	Average round-trip time for all neighbors on the interface.
Pacing Time	Number of milliseconds to wait after transmitting unreliable and reliable packets.
Multicast Flow Timer	Number of milliseconds to wait for acknowledgment of a multicast packet by all neighbors before transmitting the next multicast packet.
Pending Routes	Number of routes still to be transmitted on this interface.

Related Commands

Command	Description
show appletalk eigrp neighbors	Displays the neighbors discovered by Enhanced IGRP.

show appletalk eigrp neighbors

To display the neighbors discovered by Enhanced IGRP, use the **show appletalk eigrp neighbors** command in EXEC mode.

```
show appletalk eigrp neighbors [interface]
```

Syntax Description	<i>interface</i> (Optional) Displays information about the specified neighbor router.
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Command Modes	EXEC
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Command History	Release	Modification
	10.3	This command was introduced.

Usage Guidelines The **show appletalk eigrp neighbors** command lists only the neighbors running AppleTalk Enhanced IGRP. To list all neighboring AppleTalk routers, use the **show appletalk neighbors** command.

Examples The following is sample output from the **show appletalk eigrp neighbors** command:

```
Router# show appletalk eigrp neighbors

AT/EIGRP Neighbors for process 1, router id 83
Address          Interface      Holdtime Uptime   Q      Seq  SRTT  RTO
                (secs)       (h:m:s) Count   Num   (ms)  (ms)
warp.Ethernet1   Ethernet2     41      0:02:48  0      282  4     20
master.Ethernet2 Ethernet2     40      1:16:46  0      333  4     20
```

Table 12 describes the fields shown in the display.

Table 12 *show appletalk eigrp neighbors Field Descriptions*

Field	Description
process 1	Number of the Enhanced IGRP routing process.
router id 83	Autonomous system number specified in the appletalk routing global configuration command.
Address	AppleTalk address of the AppleTalk Enhanced IGRP peer.
Interface	Interface on which the router is receiving hello packets from the peer.
Holdtime	Length of time, in seconds, that the Cisco IOS software will wait to hear from the peer before declaring it down. If the peer is using the default hold time, this number will be less than 15. If the peer configures a nondefault hold time, it will be reflected here.

Table 12 *show appletalk eigrp neighbors Field Descriptions (continued)*

Field	Description
Uptime	Elapsed time, in hours, minutes, and seconds, since the local router first heard from this neighbor.
Q Count	Number of AppleTalk Enhanced IGRP packets (update, query, and reply) that the Cisco IOS software is waiting to send.
Seq Num	Sequence number of the last update, query, or reply packet that was received from this neighbor.
SRTT	Smooth round-trip time. This is the number of milliseconds it takes for an AppleTalk Enhanced IGRP packet to be sent to this neighbor and for the local router to receive an acknowledgment of that packet.
RTO	Retransmission timeout, in milliseconds. This is the amount of time the Cisco IOS software waits before retransmitting a packet from the retransmission queue to a neighbor.

Related Commands

Command	Description
appletalk routing	Enables AppleTalk routing.
show appletalk neighbors	Displays information about the AppleTalk routers that are directly connected to any of the networks to which this router is directly connected.

show appletalk eigrp topology

To display the AppleTalk Enhanced IGRP topology table, use the **show appletalk eigrp topology** command in EXEC mode.

show appletalk eigrp topology [*network-number* | **active** | **zero-successors**]

Syntax Description	
<i>network-number</i>	(Optional) Number of the AppleTalk network whose topology table entry you want to display.
active	(Optional) Displays the entries for all active routes.
zero-successors	(Optional) Displays the entries for destinations for which no successors exist. These entries are destinations that the Cisco IOS software currently does not know how to reach via Enhanced IGRP. This option is useful for debugging network problems.

Command Modes EXEC

Command History	Release	Modification
	10.3	This command was introduced.

Usage Guidelines All Enhanced IGRP routes that are received for a destination, regardless of metric, are placed in the topology table. The route to a destination that is currently in use is the first route listed. Routes that are listed as “connected” take precedence over any routes learned from any other source.

Examples The following is sample output from the **show appletalk eigrp topology** command:

```
Router# show appletalk eigrp topology

IPX EIGRP Topology Table for process 1, router id 1

Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - Reply status

P 3165-0, 1 successors, FD is 0
   via Redistributed (25601/0),
   via 100.1 (2198016/2195456), Fddi0
   via 4080.67 (2198016/53760), Serial4
P 3161-0, 1 successors, FD is 307200
   via Redistributed (1025850/0),
   via 100.1 (2198016/2195456), Fddi0
   via 4080.67 (2198016/1028410), Serial4
P 100-100, 1 successors, FD is 0
   via Connected, Fddi0
   via 4080.67 (2198016/28160), Serial4
P 4080-4080, 1 successors, FD is 0
   via Connected, Serial4
   via 100.1 (2172416/2169856), Fddi0
```

Table 13 describes the fields that may be displayed in the output.

Table 13 *show appletalk eigrp topology Field Descriptions*

Field	Description
Codes:	State of this topology table entry. Passive and Active refer to the Enhanced IGRP state with respect to this destination; and Update, Query, and Reply refer to the type of packet that is being sent.
P – Passive	No Enhanced IGRP computations are being performed for this destination.
A – Active	Enhanced IGRP computations are being performed for this destination.
U – Update	Indicates that an update packet was sent to this destination.
Q – Query	Indicates that a query packet was sent to this destination.
R – Reply	Indicates that a reply packet was sent to this destination.
r – Reply status	Flag that is set after the Cisco IOS software has sent a query and is waiting for a reply.
3165, 3161, and so on	Destination AppleTalk network number.
successors	Number of successors. This number corresponds to the number of next hops in the AppleTalk routing table.
FD	Feasible distance. This value is used in the feasibility condition check. If the neighbor's reported distance (the metric after the slash) is less than the feasible distance, the feasibility condition is met and that path is a feasible successor. Once the software determines it has a feasible successor, it does not have to send a query for that destination.
replies	Number of replies that are still outstanding (have not been received) with respect to this destination. This information appears only when the destination is in the Active state.
state	Exact Enhanced IGRP state that this destination is in. It can be the number 0, 1, 2, or 3. This information appears only when the destination is Active.
via	AppleTalk address of the peer who told the software about this destination. The first <i>n</i> of these entries, where <i>n</i> is the number of successors, are the current successors. The remaining entries on the list are feasible successors.
(345088/319488)	The first number is the Enhanced IGRP metric that represents the cost to the destination, The second number is the Enhanced IGRP metric that this peer advertised to us.
Ethernet0	Interface from which this information was learned.

The following is sample output from the **show appletalk eigrp topology** command when you specify an AppleTalk network number:

```
Router# show appletalk eigrp topology 3165

AT-EIGRP topology entry for 3165-0
State is Passive, Query origin flag is 1, 1 Successor(s)
Routing Descriptor Blocks:
0.0, from 0.0
  Composite metric is (25601/0), Send flag is 0x0, Route is Internal
  Vector metric:
    Minimum bandwidth is 2560000000 Kbit
    Total delay is 1000000 nanoseconds
    Reliability is 255/255
    Load is 1/255
    Minimum MTU is 1500
    Hop count is 0
100.1 (Fddi0), from 100.1
  Composite metric is (2198016/2195456), Send flag is 0x0, Route is External
  Vector metric:
    Minimum bandwidth is 1544 Kbit
    Total delay is 21100000 nanoseconds
    Reliability is 255/255
    Load is 1/255
    Minimum MTU is 1500
    Hop count is 2
4080.83 (Serial4), from 4080.83
  Composite metric is (2198016/53760), Send flag is 0x0, Route is Internal
  Vector metric:
    Minimum bandwidth is 1544 Kbit
    Total delay is 21100000 nanoseconds
    Reliability is 255/255
    Load is 1/255
    Minimum MTU is 1500
    Hop count is 2
```

Table 14 describes the fields that may appear in the output.

Table 14 *show appletalk eigrp topology* Field Descriptions—Specified Network

Field	Description
3165	AppleTalk network number of the destination.
State is ...	State of this entry. It can be either Passive or Active. Passive means that no Enhanced IGRP computations are being performed for this destination, and Active means that they are being performed.
Query origin flag	Exact Enhanced IGRP state that this destination is in. It can be the number 0, 1, 2, or 3. This information appears only when the destination is Active.
Successors	Number of successors. This number corresponds to the number of next hops in the IPX routing table.

Table 14 show appletalk eigrp topology Field Descriptions—Specified Network (continued)

Field	Description
Next hop is ...	Indicates how this destination was learned. It can be one of the following: <ul style="list-style-type: none"> • Connected—The destination is on a network directly connected to this router. • Redistributed—The destination was learned via RTMP or another routing protocol. • AppleTalk host address—The destination was learned from that peer via this Enhanced IGRP process.
Ethernet0	Interface from which this information was learned.
from	Peer from whom the information was learned. For connected and redistributed routers, this is 0.0. For information learned via Enhanced IGRP, this is the peer's address. Currently, for information learned via Enhanced IGRP, the peer's AppleTalk address always matches the address in the "Next hop is" field.
Composite metric is	Enhanced IGRP composite metric. The first number is this device's metric to the destination, and the second is the peer's metric to the destination.
Send flag	Numeric representation of the "flags" field. It is 0 when nothing is being sent, 1 when an Update is being sent, 3 when a Query is being sent, and 4 when a Reply is being sent. Currently, 2 is not used.
Route is ...	Type of router. It can be either internal or external. Internal routes are those that originated in an Enhanced IGRP autonomous system, and external routes are those that did not. Routes learned via RTMP are always external.
Vector metric:	This section describes the components of the Enhanced IGRP metric.
Minimum bandwidth	Minimum bandwidth of the network used to reach the next hop.
Total delay	Delay time to reach the next hop.
Reliability	Reliability value used to reach the next hop.
Load	Load value used to reach the next hop.
Minimum MTU	Smallest Maximum Transmission Unit (MTU) size of the network used to reach the next hop.
Hop count	Number of hops to the next hop.
External data	This section describes the original protocol from which this route was redistributed. It appears only for external routes.
Originating router	Network address of the router that first distributed this route into AppleTalk Enhanced IGRP.
External protocol metric delay	External protocol from which this route was learned. The metric will match the external hop count displayed by the show appletalk route command for this destination. The delay is the external delay.
Administrator tag	Currently not used.
Flag	Currently not used.

Related Commands

Command	Description
show appletalk route	Displays all entries or specified entries in the AppleTalk routing table.

show appletalk globals

To display information and settings about the AppleTalk internetwork and other parameters, use the **show appletalk globals** command in EXEC mode.

show appletalk globals

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Examples The following is sample output from the **show appletalk globals** command:

```
Router# show appletalk globals

AppleTalk global information:
  The router is a domain router.
  Internet is compatible with older, AT Phase1, routers.
  There are 67 routes in the internet.
  There are 25 zones defined.
  All significant events will be logged.
  ZIP resends queries every 10 seconds.
  RTMP updates are sent every 10 seconds with a jitter.
  RTMP entries are considered BAD after 20 seconds.
  RTMP entries are discarded after 60 seconds.
  AARP probe retransmit count: 10, interval: 200.
  AARP request retransmit count: 5, interval: 1000.
  DDP datagrams will be checksummed.
  RTMP datagrams will be strictly checked.
  RTMP routes may not be propagated without zones.
  Alternate node address format will not be displayed.
```

Table 15 describes the fields shown in the display.

Table 15 *show appletalk globals* Field Descriptions

Field	Description
AppleTalk global information:	Heading for the command output.
The router is a domain router.	Indicates whether this router is a domain router.
Internet is compatible with older, AT Phase1, routers.	Indicates whether the AppleTalk internetwork meets the criteria for interoperability with Phase 1 routers.
There are 67 routes in the internet.	Total number of routes in the AppleTalk internetwork from which this router has heard in routing updates.
There are 25 zones defined.	Total number of valid zones in the current AppleTalk internetwork configuration.

Table 15 *show appletalk globals Field Descriptions (continued)*

Field	Description
All significant events will be logged.	Indicates whether the router has been configured with the appletalk event-logging command.
ZIP resends queries every 10 seconds.	Interval, in seconds, at which zone name queries are retried.
RTMP updates are sent every 10 seconds.	Interval, in seconds, at which the Cisco IOS software sends routing updates.
RTMP entries are considered BAD after 20 seconds.	Time after which routes for which the software has not received an update will be marked as candidates for being deleted from the routing table.
RTMP entries are discarded after 60 seconds.	Time after which routes for which the software has not received an update will be deleted from the routing table.
AARP probe retransmit count: 10, interval: 200.	Number of AARP probe retransmissions that will be done before abandoning address negotiations and instead using the selected AppleTalk address, followed by the time, in milliseconds, between retransmission of ARP probe packets. You set these values with the appletalk arp retransmit-count and appletalk arp interval commands, respectively.
AARP request retransmit count: 5, interval: 1000.	Number of AARP request retransmissions that will be done before abandoning address negotiations and using the selected AppleTalk address, followed by the time, in milliseconds, between retransmission of ARP request packets. You set these values with the appletalk arp retransmit-count and appletalk arp interval commands, respectively.
DDP datagrams will be checksummed.	Indicates whether the appletalk checksum configuration command is enabled. When enabled, the software discards DDP packets when the checksum is incorrect and when the router is the final destination for the packet.
RTMP datagrams will be strictly checked.	Indicates whether the appletalk strict-rtmp-checking configuration command is enabled. When enabled, RTMP packets arriving from routers that are not directly connected to the router performing the check are discarded.
RTMP routes may not be propagated without zones.	Indicates whether the appletalk require-route-zones configuration command is enabled. When enabled, the Cisco IOS software does not advertise a route to its neighboring routers until it has obtained a network/zone association for that route.
Alternate node address format will not be displayed.	Indicates whether AppleTalk addresses will be printed in numeric or name form. You configure this with the appletalk lookup-type and appletalk name-lookup-interval commands.

Related Commands	Command	Description
	appletalk arp interval	Specifies the time interval between retransmissions of ARP packets.
	appletalk arp retransmit-count	Specifies the number of ARP probe or request transmissions.
	appletalk checksum	Enables the generation and verification of checksums for all AppleTalk packets (except routed packets).
	appletalk event-logging	Logs significant network events.
	appletalk lookup-type	Specifies which NBP service types are retained in the name cache.
	appletalk name-lookup-interval	Sets the interval between service pollings by the router on its AppleTalk interfaces.
	appletalk require-route-zones	Prevents the advertisement of routes (network numbers or cable ranges) that have no assigned zone.
	appletalk strict-rtmp-checking	Performs maximum checking of routing updates to ensure their validity.

show appletalk interface

To display the status of the AppleTalk interfaces configured in the Cisco IOS software and the parameters configured on each interface, use the **show appletalk interface** command in privileged EXEC mode.

```
show appletalk interface [brief] [type number]
```

Syntax Description		
brief	(Optional) Displays a brief summary of the status of the AppleTalk interfaces.	
<i>type</i>	(Optional) Interface type. It can be one of the following types: asynchronous, dialer, Ethernet (IEEE 802.3), Token Ring (IEEE 802.5), FDDI, High-Speed Serial Interface (HSSI), Virtual Interface, ISDN Basic Rate Interface (BRI), ATM interface, loopback, null, or serial.	
<i>number</i>	(Optional) Interface number.	

Command Modes	
	Privileged EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines	
	The show appletalk interface is particularly useful when you first enable AppleTalk on a router interface.

Examples	
	The following is sample output from the show appletalk interface command for an extended AppleTalk network:

```
Router# show appletalk interface fddi 0

Fddi0 is up, line protocol is up
  AppleTalk cable range is 4199-4199
  AppleTalk address is 4199.82, Valid
  AppleTalk zone is "Low End SW Lab"
  AppleTalk address gleaning is disabled
  AppleTalk route cache is enabled
  Interface will not perform pre-FDDITalk compatibility
```

Table 16 describes the fields shown in the display as well as some fields not shown but that also may be displayed. Note that this command can show a node name in addition to the address, depending on how the software has been configured with the **appletalk lookup-type** and **appletalk name-lookup-interval** commands.

Table 16 show appletalk interface Field Descriptions—Extended Network

Field	Description
FDDI is ...	Type of interface and whether it is currently active and inserted into the network (up) or inactive and not inserted (down).
line protocol	Indicates whether the software processes that handle the line protocol believe the interface is usable (that is, whether <i>keepalives</i> are successful).
AppleTalk node	Indicates whether the node is up or down in the network.
AppleTalk cable range	Cable range of the interface.
AppleTalk address is ..., Valid	Address of the interface, and whether the address conflicts with any other address on the network (“Valid” means it does not).
AppleTalk zone	Name of the zone that this interface is in.
AppleTalk port configuration verified ...	When our access server implementation comes up on an interface, if there are other routers detected and the interface we are bringing up is not in discovery mode, our access server “confirms” our configuration with the routers that are already on the cable. The address printed in this field is that of the router with which the local router has verified that the interface configuration matches that on the running network.
AppleTalk discarded...packets due to input errors	Number of packets the interface discarded because of input errors. These errors are usually incorrect encapsulations (that is, the packet has a malformed header format).
AppleTalk address gleaning	Indicates whether the interface is automatically deriving ARP table entries from incoming packets (referred to as <i>gleaning</i>).
AppleTalk route cache	Indicates whether fast switching is enabled on the interface.
Interface will ...	Indicates that the AppleTalk interface will check to see if AppleTalk packets sent on the FDDI ring from routers running Cisco software releases prior to Release 9.0(3) or 9.1(2) are recognized.
AppleTalk domain	AppleTalk domain of which this interface is a member.

The following is sample output from the **show appletalk interface** command for a nonextended AppleTalk network:

```
Router# show appletalk interface ethernet 1

Ethernet 1 is up, line protocol is up
  AppleTalk address is 666.128, Valid
  AppleTalk zone is Underworld
  AppleTalk routing protocols enabled are RTMP
  AppleTalk address gleaning is enabled
  AppleTalk route cache is not initialized
```

Table 17 describes the fields shown in the display.

Table 17 *show appletalk interface Field Descriptions—Nonextended Network*

Field	Description
Ethernet 1	Type of interface and whether it is currently active and inserted into the network (up) or inactive and not inserted (down).
line protocol	Indicates whether the software processes that handle the line protocol believe the interface is usable (that is, whether <i>keepalives</i> are successful).
AppleTalk address is ..., Valid	Address of the interface, and whether the address conflicts with any other address on the network (“Valid” means it does not).
AppleTalk zone	Name of the zone that this interface is in.
AppleTalk routing protocols enabled	AppleTalk routing protocols that are enabled on the interface.
AppleTalk address gleaning	Indicates whether the interface is automatically deriving ARP table entries from incoming packets (referred to as <i>gleaning</i>).
AppleTalk route cache	Indicates whether fast switching is enabled on the interface.

The following is sample output from the **show appletalk interface brief** command:

```
Router# show appletalk interface brief

Interface  Address      Config      Status/Line Protocol  Atalk Protocol
TokenRing0 108.36      Extended   up                    down
TokenRing1 unassigned  not config'd  administratively down  n/a
Ethernet0   10.82       Extended   up                    up
Serial0     unassigned  not config'd  administratively down  n/a
Ethernet1   30.83       Extended   up                    up
Serial1     unassigned  not config'd  administratively down  n/a
Serial2     unassigned  not config'd  administratively down  n/a
Serial3     unassigned  not config'd  administratively down  n/a
Serial4     unassigned  not config'd  administratively down  n/a
Serial5     unassigned  not config'd  administratively down  n/a
Fddi0       50001.82    Extended   administratively down  down
Ethernet2   unassigned  not config'd  up                    n/a
Ethernet3   9993.137    Extended   up                    up
Ethernet4   40.82       Non-Extended up                    up
Ethernet5   unassigned  not config'd  administratively down  n/a
Ethernet6   unassigned  not config'd  administratively down  n/a
Ethernet7   unassigned  not config'd  administratively down  n/a
```

Table 18 describes the fields shown in the display.

Table 18 *show appletalk interface brief Field Descriptions*

Field	Description
Interface	Interface type and number.
Address	Address assigned to the interface.
Config	How the interface is configured. Possible values are extended, nonextended, and not configured.

Table 18 show appletalk interface brief Field Descriptions (continued)

Field	Description
Status/Line Protocol	Whether the software processes that handle the line protocol believe the interface is usable (that is, whether <i>keepalives</i> are successful).
Atalk Protocol	Whether AppleTalk routing is up and running on the interface.

The following sample output displays the **show appletalk interface** command when AppleTalk RTMP stub mode is enabled. The last line of the output notes that this mode is turned on.

```
Router# show appletalk interface e 2
Ethernet2 is up, line protocol is up
  AppleTalk cable range is 30-30
  AppleTalk address is 30.1, Valid
  AppleTalk zone is "Zone30-30"
  AppleTalk address gleaning is disabled
  AppleTalk route cache is enabled
  AppleTalk RTMP stub mode is enabled
```

Related Commands

Command	Description
appletalk access-group	Assigns an access list to an interface.
appletalk address	Enables nonextended AppleTalk routing on an interface.
appletalk cable-range	Enables an extended AppleTalk network.
appletalk client-mode	Allows users to access an AppleTalk zone when dialing into an asynchronous line (on Cisco routers, only via the auxiliary port).
appletalk discovery	Places an interface into discovery mode.
appletalk distribute-list in	Filters routing updates received from other routers over a specified interface.
appletalk distribute-list out	Filters routing updates sent to other routers.
appletalk free-trade-zone	Establishes a free-trade zone.
appletalk getzonelist-filter	Filters GZL replies.
appletalk glean-packets	Derives ARP table entries from incoming packets.
appletalk pre-fdditalk	Enables the recognition of pre-FDDI Talk packets.
appletalk protocol	Specifies the routing protocol to use on an interface.
appletalk route-cache	Enables fast switching on all supported interfaces.
appletalk rtmp-stub	Enables AppleTalk RTMP stub mode.
appletalk send-rtmps	Allows the Cisco IOS software to send routing updates to its neighbors.
appletalk zip-reply-filter	Configures a ZIP reply filter.
appletalk zone	Sets the zone name for the connected AppleTalk network.

show appletalk macip-clients

To display status information about all known MacIP clients, use the **show appletalk macip-clients** command in EXEC mode.

show appletalk macip-clients

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Examples The following is sample output from the **show appletalk macip-clients** command:

```
Router# show appletalk macip-clients
131.108.199.1@[2700ln,69a,72s] 45 secs 'S/W Test Lab'
```

Table 19 describes the fields shown in the display.

Table 19 *show appletalk macip-clients* Field Descriptions

Field	Description
131.108.199.1@	Client IP address.
[2700ln,69a,72s]	DDP address of the registered entity, showing the network number, node address, and socket number.
45 secs	Time (in seconds) since the last NBP confirmation was received.
'S/W Test Lab'	Name of the zone to which the MacIP client is attached.

Related Commands	Command	Description
	show appletalk traffic	Displays statistics about AppleTalk traffic.

show appletalk macip-servers

To display status information about related servers, use the **show appletalk macip-servers** command in EXEC mode.

show appletalk macip-servers

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines The information in the **show appletalk macip-servers** display can help you quickly determine the status of your MacIP configuration. In particular, the STATE field can help identify problems in your AppleTalk environment.

Examples The following is sample output from the **show appletalk macip-servers** command:

```
Router# show appletalk macip-servers

MACIP SERVER 1, IP 131.108.199.221, ZONE 'S/W Test Lab' STATE is server_up
Resource #1 DYNAMIC 131.108.199.1-131.108.199.10, 1/10 IP in use
Resource #2 STATIC 131.108.199.11-131.108.199.20, 0/10 IP in use
```

Table 20 describes the fields shown in the display.

Table 20 *show appletalk macip-servers Field Descriptions*

Field	Description
MACIP SERVER 1	Number of the MacIP server. This number is assigned arbitrarily.
IP 131.108.199.221	IP address of the MacIP server.
ZONE 'S/W Test Lab'	AppleTalk server zone specified with the appletalk macip server command.

Table 20 show appletalk macip-servers Field Descriptions (continued)

Field	Description
STATE is server_up	State of the server. Table 22 lists the possible states. If the server remains in the “resource_wait” state, check that resources have been assigned to this server with either the appletalk macip dynamic or the appletalk macip static command.
Resource #1 DYNAMIC 131.108.199.1-131.108.199.1 0, 1/10 IP in use	Resource specifications defined in the appletalk macip dynamic and appletalk macip static commands. This list indicates whether the resource address was assigned dynamically or statically, identifies the IP address range associated with the resource specification, and indicates the number of active MacIP clients.

Use the **show appletalk macip-servers** command with **show appletalk interface** to identify AppleTalk network problems, as follows:

-
- Step 1** Determine the state of the MacIP server using **show appletalk macip-servers**. If the STATE field continues to indicate an anomalous status (something other than “server_up,” such as “resource_wait” or “zone_wait”), there is a problem.
- Step 2** Determine the status of AppleTalk routing and the specific interface using the **show appletalk interface** command.
- Step 3** If the protocol and interface are up, check the MacIP configuration commands for inconsistencies in the IP address and zone.
-

The STATE field of the **show appletalk macip-servers** command indicates the current state of each configured MacIP server. Each server operates according to the finite-state machine table described in Table 21. Table 22 describes the state functions listed in Table 21. These are the states that are displayed by the **show appletalk macip-servers** command.

Table 21 MacIP Finite-State Machine Table

State	Event	New State	Notes
initial	ADD_SERVER	resource_wait	Server configured
resource_wait	TIMEOUT	resource_wait	Wait for resources
resource_wait	ADD_RESOURCE	zone_wait	Wait for zone seeding
zone_wait	ZONE_SEEDED	server_start	Register server
zone_wait	TIMEOUT	zone_wait	Wait until seeded
server_start	START_OK	reg_wait	Wait for server register
server_start	START_FAIL	del_server	Could not start (possible configuration error)
reg_wait	REG_OK	server_up	Registration successful

Table 21 MacIP Finite-State Machine Table (continued)

State	Event	New State	Notes
reg_wait	REG_FAIL	del_server	Registration failed (possible duplicate IP address)
reg_wait	TIMEOUT	reg_wait	Wait until register
server_up	TIMEOUT	send_confirms	NBP confirm all clients
send_confirms	CONFIRM_OK	server_up	
send_confirms	ZONE_DOWN	zone_wait	Zone or IP interface down; restart
*	ADD_RESOURCE	*	Ignore, except resource_wait
*	DEL_SERVER	del_server	“No server” statement (HALT)
*	DEL_RESOURCE	ck_resource	Ignore
ck_resource	YES_RESOURCE	*	Return to previous state
ck_resource	NO_RESOURCES	resource_wait	Shut down and wait for resources

Table 22 Server States

State	Description
ck_resource	The server verifies that at least one client range is available. If not, it deregisters NBP names and returns to the resource_wait state.
del_server	State at which all servers end. In this state, the server deregisters all NBP names, purges all clients, and deallocates server resources.
initial	The state at which all servers start.
resource-wait	The server waits until a client range for the server has been configured.
send_confirms	The server tickles active clients every minute, deletes clients that have not responded within the last 5 minutes, and checks IP and AppleTalk interfaces used by MacIP server. If the interfaces are down or have been reconfigured, the server restarts.
server_start	The server registers configured IPADDRESS and registers as IPGATEWAY. It then opens an ATP socket to listen for IP address assignment requests, sends NBP lookup requests for existing IPADDRESSes, and automatically adds clients with addresses within one of the configured client ranges.
server_up	The server has registered. Being in this state enables routing to client ranges. The server now responds to IP address assignment requests.

Table 22 Server States (continued)

State	Description
zone_wait	The server waits until the configured AppleTalk zone name for the server is up. The server will remain in this state if no such zone has been configured or if AppleTalk routing is not enabled.
*	An asterisk in the first column represents any state. An asterisk in the second column represents a return to the previous state.

Related Commands

Command	Description
appletalk macip dynamic	Allocates IP addresses to dynamic MacIP clients.
appletalk macip server	Establishes a MacIP server for a zone.
appletalk macip static	Allocates an IP address to be used by a MacIP client that has reserved a static IP address.
show appletalk interface	Displays the status of the AppleTalk interfaces configured in the Cisco IOS software and the parameters configured on each interface.
show appletalk traffic	Displays statistics about AppleTalk traffic.

show appletalk macip-traffic

To display statistics about MacIP traffic through the router, use the **show appletalk macip-traffic** command in privileged EXEC mode.

show appletalk macip-traffic

Syntax Description This command has no arguments or keywords.

Command Modes Privileged EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines Use the **show appletalk macip-traffic** command to obtain a detailed breakdown of MacIP traffic that is sent through a router from an AppleTalk to an IP network. The output from this command differs from that of the **show appletalk traffic** command, which shows normal AppleTalk traffic generated, received, or routed by the router.

Examples The following is sample output from the **show appletalk macip-traffic** command:

```
Router# show appletalk macip-traffic

-- MACIP Statistics
      MACIP_DDP_IN:      11062
      MACIP_DDP_IP_OUT:  10984
MACIP_DDP_NO_CLIENT_SERVICE:  78
      MACIP_IP_IN:      7619
      MACIP_IP_DDP_OUT:  7619
      MACIP_SERVER_IN:   62
      MACIP_SERVER_OUT:  52
      MACIP_SERVER_BAD_ATP:  10
      MACIP_SERVER_ASSIGN_IN:  26
      MACIP_SERVER_ASSIGN_OUT:  26
      MACIP_SERVER_INFO_IN:  26
      MACIP_SERVER_INFO_OUT:  26
```

Table 23 describes the fields shown in the display.

Table 23 *show appletalk macip-traffic Field Descriptions*

Field	Description
MACIP_DDP_IN	Number of DDP packets received.
MACIP_DDP_IP_OUT	Number of DDP packets received that were sent to the IP network.
MACIP_DDP_NO_CLIENT_SERVICE	Number of DDP packets received for which there is no client.

Table 23 *show appletalk macip-traffic Field Descriptions (continued)*

Field	Description
MACIP_IP_IN	Number of IP packets received.
MACIP_IP_DDP_OUT	Number of IP packets received that were sent to the AppleTalk network.
MACIP_SERVER_IN	Number of packets destined for MacIP servers.
MACIP_SERVER_OUT	Number of packets sent by MacIP servers.
MACIP_SERVER_BAD_ATP	Number of MacIP allocation requests received with a bad request.
MACIP_SERVER_ASSIGN_IN	Number of MacIP allocation requests received asking for an IP address.
MACIP_SERVER_ASSIGN_OUT	Number of IP addresses assigned.
MACIP_SERVER_INFO_IN	Number of MacIP packets received requesting server information.
MACIP_SERVER_INFO_OUT	Number of server information requests answered.

Related Commands

Command	Description
show appletalk traffic	Displays statistics about AppleTalk traffic.

show appletalk name-cache

To display a list of NBP services offered by nearby routers and other devices that support NBP, use the **show appletalk name-cache** command in privileged EXEC mode.

show appletalk name-cache

Syntax Description This command has no arguments or keywords.

Command Modes Privileged EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines The **show appletalk name-cache** command displays the information currently in the NBP name cache. Support for names allows you to easily identify and determine the status of any associated device. This can be important in AppleTalk internetworks where node numbers are dynamically generated.

You can authorize the **show appletalk name-cache** command to display any AppleTalk services of interest in local zones. This contrasts with the **show appletalk nbp** command, which you use to display services registered by routers.

Examples The following is sample output from the **show appletalk name-cache** command:

```
Router# show appletalk name-cache
```

```
AppleTalk Name Cache:
```

Net	Adr	Sket	Name	Type	Zone
4160	19	8	gatekeeper	SNMP Agent	Underworld
4160	19	254	gatekeeper.Ether4	ciscoRouter	Underworld
4160	86	8	bones	SNMP Agent	Underworld
4160	86	72	131.108.160.78	IPADDRESS	Underworld
4160	86	254	bones.Ethernet0	IPGATEWAY	Underworld

Table 24 describes the fields shown in the display.

Table 24 *show appletalk name-cache Field Descriptions*

Field	Description
Net	AppleTalk network number or cable range.
Adr	Node address.
Sket	DDP socket number.
Name	Name of the service.

Table 24 *show appletalk name-cache Field Descriptions (continued)*

Field	Description
Type	Device type. The possible types vary, depending on the service. The following are the Cisco server types: <ul style="list-style-type: none"> • ciscoRouter—Server is a Cisco router. • SNMP Agent—Server is an SNMP agent. • IPGATEWAY—Active MacIP server names. • IPADDRESS—Active MacIP server addresses.
Zone	Name of the AppleTalk zone to which this address belongs.

Related Commands

Command	Description
show appletalk nbp	Displays the contents of the NBP name registration table.

show appletalk nbp

To display the contents of the NBP name registration table, use the **show appletalk nbp** command in EXEC mode.

show appletalk nbp

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines The **show appletalk nbp** command lets you identify specific AppleTalk nodes. It displays services registered by the router. In contrast, use the **show appletalk name-cache** command to display any AppleTalk services of interest in local zones.

Routers with active AppleTalk interfaces register each interface separately. The Cisco IOS software generates a unique interface NBP name by appending the interface type name and unit number to the router name. For example, for the router named “router” that has AppleTalk enabled on Ethernet interface 0 in the zone Marketing, the NBP registered name is as follows:

```
router.Ethernet0:ciscoRouter@Marketing
```

Registering each interface on the router provides you with an indication that the device is configured and operating properly.

One name is registered for each interface. Other service types are registered once for each zone.

The Cisco IOS software deregisters the NBP name if AppleTalk is disabled on the interface for any reason.

Examples The following is sample output from the **show appletalk nbp** command:

```
Router# show appletalk nbp

Net  Adr  Skt  Name                               Type           Zone
4160 211  254  pag.Ethernet0                     ciscoRouter    Low End SW Lab
4160 211   8  pag                               SNMP Agent     Low End SW Lab
4172  84  254  pag.TokenRing0                    ciscoRouter    LES Tokenring
4172  84   8  pag                               SNMP Agent     LES Tokenring
200  75  254  myrouter. Ethernet1                ciscoRouter    Marketing      *
```

Table 25 describes the fields shown in the display as well as some other fields that also may be displayed.

Table 25 *show appletalk nbp Field Descriptions*

Field	Description
Net	AppleTalk network number.
Adr	Node address.
Skt	DDP socket number.
Name	Name of the service.
Type	Device type. The possible types vary, depending on the service. The following are the Cisco server types: <ul style="list-style-type: none"> • ciscoRouter—Cisco routers displayed by port. • SNMP Agent—SNMP agents displayed by zone if AppleTalk SNMP-over-DDP is enabled. • IPGATEWAY—Active MacIP server names. • IPADDRESS—Active MacIP server addresses.
Zone	Name of the AppleTalk zone to which this address belongs.
*	An asterisk in the right margin indicates that the name registration is pending confirmation.

Related Commands

Command	Description
show appletalk name-cache	Displays a list of NBP services offered by nearby routers and other devices that support NBP.

show appletalk neighbors

To display information about the AppleTalk routers that are directly connected to any of the networks to which this router is directly connected, use the **show appletalk neighbors** command in EXEC mode.

show appletalk neighbors [*neighbor-address*]

Syntax Description	<i>neighbor-address</i> (Optional) Displays information about the specified neighbor router.
---------------------------	----------------------------------------------------------------------------------------------

Command Modes	EXEC
----------------------	------

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines If no neighbor address is specified, this command displays information about all AppleTalk routers. The local router determines the AppleTalk network topology from its neighboring routers and learns from them most of the other information it needs to support the AppleTalk protocols.

Examples The following is sample output from the **show appletalk neighbors** command:

```
Router# show appletalk neighbors

AppleTalk neighbors:
 17037.2      anger.Ethernet0/0      Ethernet0/0, uptime 8:33:27, 2 secs
              Neighbor is reachable as a RTMP peer
 17037.108    Ethernet0/0, uptime 8:33:21, 7 secs
              Neighbor is reachable as a RTMP peer
 17037.248    Ethernet0/0, uptime 8:33:30, 4 secs
              Neighbor is reachable as a RTMP peer
 17046.2      anger.Ethernet0/1      Ethernet0/1, uptime 8:33:27, 2 secs
              Neighbor is reachable as a RTMP peer
 17435.87     firewall.Ethernet0/0   Ethernet0/3, uptime 8:33:27, 6 secs
              Neighbor is reachable as a RTMP peer
 17435.186    the-wall.Ethernet0     Ethernet0/3, uptime 8:33:24, 5 secs
              Neighbor is reachable as a RTMP peer
 17435.233    teach-gw.Ethernet0     Ethernet0/3, uptime 8:33:24, 7 secs
              Neighbor is reachable as a RTMP peer
 17036.1      other-gw.Ethernet5     Ethernet0/5, uptime 8:33:29, 9 secs
              Neighbor is reachable as a RTMP peer
 4021.5       boojum.Hssi4/0        Hssi1/0, uptime 10:49:02, 0 secs
              Neighbor has restarted 1 time in 8:33:11.
              Neighbor is reachable as a static peer
```

Table 26 describes the fields shown in this display. Depending on the configuration of the **appletalk lookup-type** and **appletalk name-lookup-interval** commands, a node name as well as a node address also may be shown in this display.

Table 26 *show appletalk neighbors Field Descriptions*

Field	Description
31.86	AppleTalk address of the neighbor router.
Ethernet0/0	Router interface through which the neighbor router can be reached.
uptime 133:28:06	Amount of time (in hours, minutes, and seconds) that the Cisco IOS software has received this neighboring router's routing updates.
2 secs	Time (in seconds) since the software last received an update from the neighbor router.
Neighbor is reachable as a RTMP peer Neighbor is reachable as a static peer	Indicates how the route to this neighbor was learned.
Neighbor is down. Neighbor has restarted 1 time	Indicates whether neighbor is up or down, and number of times it has restarted in the specified time interval, displayed in the format hours:minutes:seconds.

The following is sample output from the **show appletalk neighbors** command when you specify the AppleTalk address of a particular neighbor:

```
Router# show appletalk neighbors 69.163

Neighbor 69.163, Ethernet0, uptime 268:00:52, last update 7 secs ago
  We have sent queries for 299 nets via 214 packets.
  Last query was sent 4061 secs ago.
  We received 152 replies and 0 extended replies.
  We have received queries for 14304 nets in 4835 packets.
  We sent 157 replies and 28 extended replies.
  We received 0 ZIP notifies.
  We received 0 obsolete ZIP commands.
  We received 4 miscellaneous ZIP commands.
  We received 0 unrecognized ZIP commands.
  We have received 92943 routing updates.
  Of the 92943 valid updates, 1320 entries were invalid.
  We received 1 routing update which were very late.
  Last update had 0 extended and 2 nonextended routes.
  Last update detail: 2 old
```

Table 27 describes the fields shown in this display. Depending on the configuration of the **appletalk lookup-type** and **appletalk name-lookup-interval** commands, a node name as well as a node address can be shown in this display.

Table 27 *show appletalk neighbors Field Descriptions—Specific Address*

Field	Description
Neighbor 69.163	AppleTalk address of the neighbor.
Ethernet0	Interface through which the router receives this neighbor's routing updates.

Table 27 *show appletalk neighbors Field Descriptions—Specific Address (continued)*

Field	Description
uptime 268:00:52	Amount of time (in hours, minutes, and seconds) that the Cisco IOS software has received this neighboring router's routing updates.
last update 7 secs ago	Time (in seconds) since the software last received an update from the neighbor router.
sent queries	Number of queries sent to neighbor networks and the number of query packets sent.
Last query was sent	Time (in seconds) since last query was sent.
received replies	Number of RTMP replies heard from this neighbor.
extended replies	Number of extended RTMP replies received from this neighbor.
ZIP notifies	Number of ZIP notify packets received from this neighbor.
obsolete ZIP commands	Number of nonextended-only (obsolete) ZIP commands received from this neighbor.
miscellaneous ZIP commands	Number of ZIP commands (for example, GNI, GZI, and GMZ) from end systems rather than from routers.
unrecognized ZIP commands	Number of bogus ZIP packets received from this neighbor.
routing updates	Number of RMTP updates received from this neighbor.
entries were invalid	Of the routing update packets received from this neighbor, the number of invalid entries discarded.
Last update detail	Of the routing update packets received from this neighbor, the number already known about.

Related Commands

Command	Description
appletalk lookup-type	Specifies which NBP service types are retained in the name cache.
appletalk name-lookup-interval	Sets the interval between service pollings by the router on its AppleTalk interfaces.