

10 Configuring AppleTalk

AppleTalk is a proprietary set of network protocols developed by Apple Computer, Inc. for Apple computers. AppleTalk can operate over a number of more familiar LAN setups, including Ethernet, and FDDI. While AppleTalk specifies its own network-layer protocol, it closely resembles the Datagram Delivery Protocol of the OSI model.

There are two different implementations of AppleTalk, Phase 1 and Phase 2. The OmniCore AppleTalk implementation uses Phase 2. AppleTalk Phase 2 corrects some of the shortcomings of Phase 1 and was specifically designed for use in larger LANs. One of the major enhancements is the Phase 2 addressing scheme, described below

While most network administrators are more than familiar with the IP addressing scheme, AppleTalk employs its own proprietary address structure. An AppleTalk network address is comprised of two separate portions that form a unique 24-bit address. The first 16-bit component identifies a LAN segment and the second 8-bit portion identifies a specific node. The two segments are separated with a decimal. Thus, the correct format for an AppleTalk address is *network.node* where *network* is a 16-bit integer in the range of 1 to 65279 and *node* is an integer in the range of 1 to 253.

Network addresses in AppleTalk are determined and assigned by the network administrator. The network segment is defined by specifying a network range that identifies one or several contiguous network numbers. Using the *appletalk* interface *net-start* and *net-end* commands, a logical network could be defined as ranging from 550-550, identifying only one specific network, or a range, such as 100-112, identifying a logical network of 13 network numbers.

AppleTalk node numbers are usually allocated dynamically. This is done through the use of AppleTalk Address Resolution Protocol (AARP). AARP is able to map the physical address of the computer to its temporary AppleTalk network node number.

AppleTalk also establishes a logical grouping of nodes called a zone. A zone is a way to group end stations that have similar functions or use similar resources. For example, a zone could be created to encompass users that are physically located in the same area, or could group together workgroups like a sales group or engineering group, regardless of their physical location. AppleTalk Phase 2 allows you to configure up to 255 zones on a network.

AppleTalk also maintains a set of routing tables, similar to the operation of IP RIP through a protocol called Routing Table Management Protocol (RTMP). RTMP is an Interior Gateway Protocol that uses hop counts to determine the best path to a network. However, unlike IP routing, RTMP keeps only one path to a network in the table at a time. RTMP also has a limit of 16 router hops. A metric greater than 15 is considered unreachable. RTMP is enabled on the OmniCore switch by default.

Before configuring an AppleTalk network you must first develop a logical addressing scheme for the network. Make sure that the scheme you develop allows unique numbers for LAN segments and individual nodes.

AppleTalk Commands

The major AppleTalk commands in the OmniCore CLI are listed in the following tables. Other commands are available for fine-tuning your AppleTalk configuration. To see a complete list of these commands or for more information regarding the commands used in this chapter, see the *OmniCore CLI Reference Manual*.

AppleTalk Global Command

Command	Default	Description
appletalk status	disable	Globally enables or disables AppleTalk routing.

AppleTalk Interface Commands

Command	Default	Description
appletalk interface	no default	Creates, deletes, enables, or disables an AppleTalk interface.
appletalk interface net-address	0.0	Assigns a network address to the AppleTalk interface.
appletalk interface net-start	0	Determines the start value of the logical network.
appletalk interface net-end	0	Determines the end value of the logical network.
appletalk interface rtmp-status	enable	Enables or disables RTMP.
appletalk interface zone	no default	Creates or deletes an AppleTalk zone.

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◆ Note ◆

This section is provided as an example to demonstrate the use of the AppleTalk commands. It is not intended as a comprehensive configuration guide to bring your AppleTalk network up to full operation.

By default, AppleTalk is disabled on the OmniCore routing switch. In order to configure an AppleTalk network, you will also have to create VLANs for each interface. Refer to chapter 4, Configuring VLANs, for more information. Configuring AppleTalk consists of these tasks:

- Enable AppleTalk routing.
- Create an AppleTalk interface.
- (Optional) Assign a cable range to the interface.
- (Optional) Assign an address to the interface.
- (Optional) Create a zone and associate it with the desired VLAN.

Follow these steps to configure AppleTalk:

1. Enable AppleTalk routing.

In order to begin AppleTalk routing on the OmniCore switch, you must first set the global status of AppleTalk routing to *enable*.

```
OmniCore> appletalk status enable
```

```
OmniCore> appletalk show
Status          :enable
```

2. Create an AppleTalk interface. Creating a unique interface with a unique address allows routers to learn about the networks that are attached to each interface and where to send packets that are destined for a specific interface. Interfaces are assigned the identifier of an existing VLAN. AppleTalk interfaces are enabled by default when they are created. For more information on VLAN configuration, see to chapter 4, "Configuring VLANs."

```
OmniCore> appletalk interface 3 create
```

```
OmniCore> appletalk interface 3 show
Type                :ethertalk2
Net Start           :0
Net End             :0
Net Address         :0.0
Net Configuration   :unseeded
Net Source          :0.0
In Packets          :0
Out Packets         :0
Address of Conflict :00:00:00:00:00:00
RTMP Status         :enable
Running Address     :0.0
Running Net Start   :0
Running Net End     :0
Oper Status         :off
Condition           :VLAN is not operational
Row Status          :enable
```

3. (Optional) Assign a cable range to the interface. Use the *net-start* and the *net-end* commands to specify a logical network segment. You may define the range as a single value or a range of values. However, the *net-start* and *net-end* commands must be configured simultaneously as shown below. The network value must specified must fall in the range of 1 to 65279. This step is not required if another router on the same interface already has this information.

```
OmniCore> appletalk interface 3 net-start 45500 net-end 65000
```

```
OmniCore> appletalk interface 3 show
Type                :ethertalk2
Net Start           :45500
Net End             :65000
Net Address         :0.0
Net Configuration   :seeded
Net Source          :0.0
In Packets          :0
Out Packets         :0
Address of Conflict :00:00:00:00:00:00
RTMP Status         :enable
Running Address     :0.0
Running Net Start   :45500
Running Net End     :65000
Oper Status         :off
Condition           :VLAN is not operational
Row Status          :enable
```

4. (Optional) Assign an address to the interface. You must also follow a logical addressing scheme for your network. Make sure that the scheme you develop allows unique numbers for all LAN segments and individual nodes. Also make certain that the address assigned to the interface falls within the cable range assigned in step 3. This step is normally not performed since AARP automatically chooses an address if none is configured.

```
OmniCore> appletalk interface 4 net-address 48000.015
```

```
OmniCore> appletalk interface 4 net-address show
Net Address                               :48000.015
```

5. (Optional) Create a zone and associate it with the desired VLAN. The zone name may be up to 32 characters long. You *must* perform this step if you assigned a cable range to the interface in step 3.

```
OmniCore> appletalk interface 4 zone sales create
```

```
OmniCore> appletalk interface 4 zone sales show
Zone Name           :sales
Zone Status         :enable
```