



## Configuring Voice over ATM

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This chapter describes how to configure Voice over Asynchronous Transfer Mode (VoATM) on the Cisco MC3810 multiservice access concentrator, and includes the following sections:

- [Preliminary ATM Configuration for Voice, page 6-2](#)
- [Preparing to Configure Voice Dial Peers, page 6-5](#)
- [Configuring Dial Peers, page 6-7](#)
- [Voice over ATM Configuration Examples, page 6-13](#)

VoATM enables a Cisco MC3810 to carry voice traffic (for example, telephone calls and faxes) over an ATM network. The Cisco MC3810 supports compressed VoATM on the T1/E1 trunk only. A special logical port designation, ATM port 0, is used in the software configuration.



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**Note**

The Cisco MC3810 does not support ATM switched virtual circuits (SVCs).

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**Note**

When using ATM on the Cisco MC3810, the channel group, time-division multiplexing (TDM) group, and Channel Associated Signaling (CAS) features are not available on the multiflex trunk module (MFT) because ATM uses all T1/E1 timeslots.

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This chapter assumes you have already configured your ATM backbone network. For more information about ATM configuration using standard Cisco IOS software, refer to the Cisco IOS *Wide Area Networking Configuration Guide*. This chapter only describes the commands to specifically configure VoATM on the Cisco MC3810.

Before you can configure your Cisco MC3810 to use VoATM, you must first:

- Establish a working ATM data network.
- Complete your company's dial plan.
- Establish a working telephony network based on your company's dial plan.



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**Note**

ATM defaults to Interim Local Management Interface (ILMI). If your carrier is using Local Management Interface (LMI), make sure to configure LMI support on the Cisco MC3810.

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## Preliminary ATM Configuration for Voice

This section describes the preliminary ATM configuration tasks necessary to support VoATM. The commands and procedures in this section are specific to the Cisco MC3810.



### Note

If any CAS groups, channel groups, or clear channels are configured on T1/E1 controller 0, you must remove them before configuring VoATM. Because ATM requires all DS0s, if any DS0s on controller 0 are used by other applications, the ATM configuration cannot take place.

To configure the Cisco MC3810 to support VoATM on the T1/E1 trunk, complete the following steps in global configuration mode:

Step	Command	Purpose
1	<code>router(config)# controller {t1   e1} 0</code>	Select the T1 or E1 controller 0. ATM is supported only on controller 0.
2	<code>router(config-controller)# mode atm</code>	<p>Specify that the controller will support ATM encapsulation, and to create logical ATM interface 0, which you will use to create the ATM PVCs. The ATM encapsulation is for standard ATM; ATM-DXI is not supported.</p> <p>When the controller is set to ATM mode, the following takes place:</p> <ul style="list-style-type: none"> <li>Controller framing is automatically set to Extended SuperFrame (ESF) on T1 and to CRC4 on E1. The linecode is automatically set to B8ZS on T1 and to HDB3 on E1.</li> <li>Channel groups, CAS groups, Common Channel Signaling (CCS) groups or clear channels are not allowed on the trunk because ATM traffic occupies all the DS0s.</li> </ul> <p>If the Cisco MC3810 has an E1 controller, a screen display similar to the following appears:</p> <pre> TDMB  channel # 99 Timeslots ( X 48K, . 56K,* 64K, - skipped) 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 - *       TDMB  channel # 99 Timeslots ( X 48K, . 56K,* 64K, -skipped) 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 - * </pre> <p>The display shows which DS0 timeslots are allocated. For example, in the display, timeslots marked with the * symbol indicate that the timeslot is a 64-kbps channel. Timeslots marked with the - symbol are skipped.</p> <p>If the Cisco MC3810 has a T1 controller, the screen display will be different, showing the DS0 timeslots specific to the T1 channels.</p>
3	<code>router(config-controller)# no shutdown</code>	Make sure the controller is activated.
4	<code>router(config-controller)# exit</code>	Exit controller configuration mode.

Step	Command	Purpose
5	router(config)# <b>interface atm0</b> { <b>multipoint</b>   <b>point-to-point</b> }	<p>Enter interface configuration mode to configure ATM interface 0.</p> <p><b>Note</b> In Cisco IOS Release 11.3(1) MA, serial port 2 was a valid port number. Beginning with Release 12.0, <b>serial 2</b> is not a valid designation on the Cisco MC3810. VoATM is supported only on ATM 0.</p> <p>If the VoATM connection will be over a point-to-point network, specify the <b>point-to-point</b> option. The default option, <b>multipoint</b>, assumes you have a fully meshed network.</p>
6	router(config-if)# <b>ip address</b> <i>ip-address mask</i>	Assign the IP address and subnet mask to the interface.
7	router(config-if)# <b>pvc</b> [ <i>name</i> ] <i>vpi/vci</i>	Create an ATM permanent virtual circuit (PVC) for voice traffic and enter virtual circuit configuration mode.
8	router(config-if-atm-pvc)# <b>encapsulation aal5mux voice</b>	<p>Set the encapsulation of the PVC to support voice traffic.</p> <p><b>Note</b> To configure a PVC to support data traffic, use <b>aal5snap</b> encapsulation.</p>

Step	Command	Purpose
9	<pre>router(config-if-atm-pvc)# vbr-rt peak-rate average-rate [burst]</pre>	<p>Configure the peak rate, average rate, and the burst cell size to perform traffic shaping between voice and data PVCs. The <b>vbr-rt</b> command configures the variable bit-rate for real-time networks such as for voice networks.</p> <p>Traffic shaping is necessary so that the carrier does not discard the incoming calls from the Cisco MC3810. To configure voice and data traffic shaping, you must configure the peak, average, and burst options for voice traffic. Configure the burst value if the PVC will be carrying bursty traffic. The peak, average, and burst values are needed so the PVC can effectively handle the bandwidth for the number of voice calls. To calculate the <i>minimum</i> peak, average, and burst values for the number of voice calls, use the following calculations:</p> <ul style="list-style-type: none"> <li>• Peak value: (2 x the maximum number of calls) x 16 KB The peak value equals the peak information rate (PIR).</li> <li>• Average value: (1 x the maximum number of calls) x 16 KB The average value equals the average information rate (AIR). This correlates to the carrier's sustained cell rate.</li> <li>• Burst value: (4 x the maximum number of calls) The burst value is the burst size in cells.</li> </ul> <p><b>Note</b> These calculations only apply to voice. When you configure data PVCs that will be traffic shaped with voice PVCs, use <b>aal5snap</b> encapsulation and calculate the overhead as 1.13 times the voice rate from the carrier. When you configure data PVCs carrying video traffic using <b>aal1</b> encapsulation, calculate the overhead as 1.14 times the peak rate.</p>
10	<pre>router(config-if-atm-pvc)# exit</pre>	<p>Exit ATM virtual circuit configuration mode.</p> <p>The only commands in ATM virtual circuit configuration mode used for ATM voice PVCs are <b>encapsulation aal5mux voice</b>, <b>vbr-rt</b>, and <b>ilmi</b>.</p>
11	Repeat steps 7–10 for each ATM voice PVC you will configure. When you have completed configuring all of the ATM voice PVCs, continue with steps 12–16.	
12	<pre>router(config-if)# pvc [name] vpi/vci</pre>	Create an ATM PVC for data traffic and enter virtual circuit configuration mode.
13	<pre>router(config-if-atm-pvc)# encapsulation aal5snap</pre>	Set the encapsulation of the PVC to support ATM data traffic.

Step	Command	Purpose
14	In ATM PVC configuration mode, configure either the <b>ubr</b> , <b>ubr+</b> , or the <b>vbr-nrt</b> traffic shaping commands for the data PVC as appropriate.	
15	<code>router(config-if-atm-pvc)# exit</code>	Exit ATM virtual circuit configuration mode.
16	Repeat steps 12–15 for each data PVC configured.	

The VoATM configuration must be performed on the Cisco MC3810 concentrators on both sides of the voice connection. Repeat the previous procedure on the other Cisco MC3810 concentrator.

### Verify the ATM PVC Configuration

To verify the ATM PVC configuration, enter the following command in privileged EXEC mode:

Step	Command	Purpose
1	<code>router# show atm vc</code>	Verify the ATM PVC configuration.



#### Note

When verifying your ATM PVC connectivity, note that you cannot issue the **ping** command over a voice PVC because the command applies to data only. If you have data and voice PVCs set to the same destination, you can issue the **ping** command over the data PVC.

This completes the preliminary VoATM configuration. To prepare your dial-peer configuration, proceed to the next section “[Preparing to Configure Voice Dial Peers](#).”

## Preparing to Configure Voice Dial Peers

After you have analyzed your dial plan and decided how to integrate it into your existing network, you are ready to configure your network devices to support VoATM. The actual configuration procedure depends on the topology of your voice network, but in general you need to complete the following tasks:

- [Organizing Voice Network Information](#)
- [Creating a Peer Configuration Table](#)



#### Timesaver

If possible, you might want to configure the ATM dial peers in a back-to-back configuration before separating them across the ATM network. Using a back-to-back configuration, you can test your VoATM and dial-peer configuration to see if you can successfully make a voice connection. Then, when you place both peers on the network, if you cannot make a voice connection, you can isolate the cause as a network problem. For an example of a back-to-back voice over ATM configuration, see the “[Voice over ATM Configuration Examples](#)” section on page 6-13.

### Organizing Voice Network Information

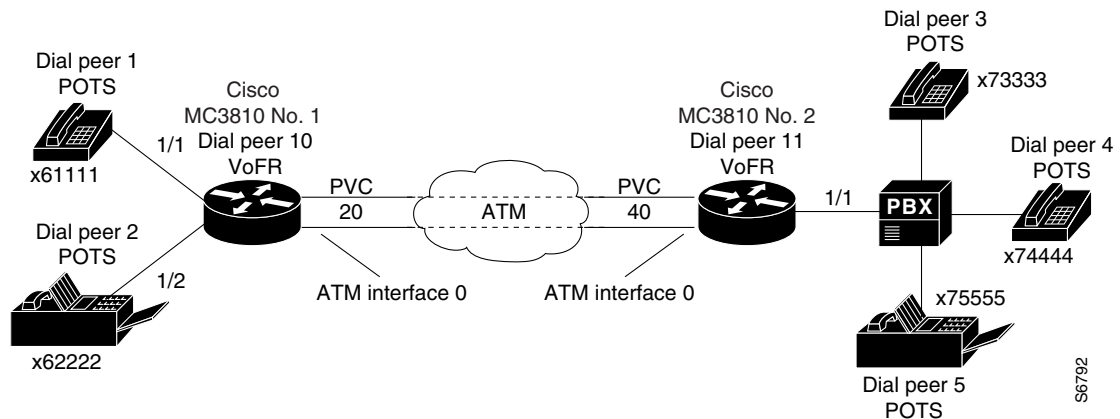
After you have merged your telephony and WAN networks together, there are tasks you can do to simplify configuring VoATM. One is to collect all of the information directly related to each dial peer by creating a peer configuration table.

## Creating a Peer Configuration Table

Figure 6-1 shows a diagram of a small voice network in which Cisco MC3810 No. 1, with ATM virtual circuit 20, connects a small sales branch office to the main office through Cisco MC3810 No. 2. There are only two devices in the sales branch office that need to be established as dial peers: a telephone and a fax machine. Cisco MC3810 No. 2, with an ATM virtual circuit of 40, is the primary gateway to the main office; as such, it needs to be connected to the company's PBX. There are three devices that need to be established as dial peers in the main office, all of which are telephones connected to the PBX.

shows the peer configuration table for the example illustrated in Figure 6-1.

**Figure 6-1 Sample VoATM Network**



**Table 6-1 Peer Configuration Table for Sample VoATM Network**

Dial Peer	Extension	Prefix	Destination Pattern	Type	Voice Port	Session Target
<b>Cisco MC3810 No. 1</b>						
1	61111		+13107661111	POTS	1/1	
2	62222		+13107662222	POTS	1/2	
10			+1310767....	VOATM		S2 20
<b>Cisco MC3810 No. 2</b>						
11			+1310766....	VOATM		S2 40
3	73333	7	+1310767....	POTS	1/1	
4	74444	7	+1310767....	POTS	1/1	
5	75555	7	+1310767....	POTS	1/1	

The dial plan shown in lists a simple dial-peer configuration table, with no special configuration for how you forward or playout excess digits. For more information on other options for designing your dial plan and configuring your dial peers to connect with PBXs, see [Chapter 9, “Voice Dial Plan Considerations.”](#)

## Configuring Dial Peers

Dial peers describe the entities to and/or from which a call is established. Dial-peer configuration tasks define the address or set of addresses serviced by that dial peer and the call parameters required to establish a call to and/or from that dial peer.

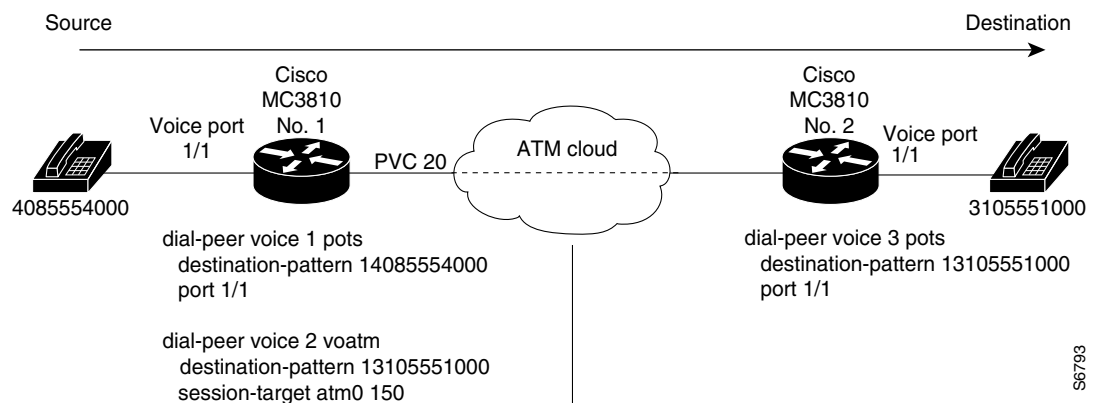
There are two different kinds of dial peers:

- Plain old telephone service (POTS)—Dial peer connected via a traditional telephony network. POTS dial peers point to a particular voice-port on a voice-network device.
- VoATM (VoATM)—Dial peer connected via an ATM WAN backbone. VoATM dial peers point to specific voice-network devices.

POTS dial peers associate a telephone number with a particular voice port so that incoming calls for that telephone number can be received. VoATM dial peers point to specific voice-network devices (by associating destination telephone numbers with a specific ATM virtual circuit) so that outgoing calls can be placed. Both POTS and VoATM dial peers are required if you want to both send and receive calls using VoATM.

Establishing two-way communication using VoATM requires establishing a specific voice connection between two defined endpoints. As shown in [Figure 6-2](#), for outgoing calls (from the perspective of the POTS dial-peer 1), the POTS dial peer establishes the source (the originating telephone number and voice port) of the call. The VoATM dial peer establishes the destination by associating the destination phone number with a specific ATM virtual circuit.

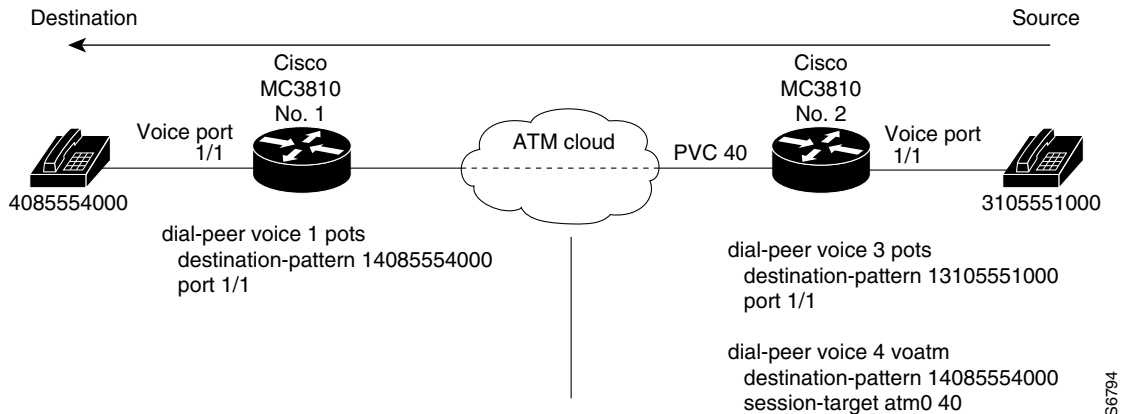
**Figure 6-2** Calls from the Perspective of Cisco MC3810 No. 1



In the example, the destination pattern 14085554000 string maps to a U.S. phone number 555-4000, with the digit 1 plus the area code (408) preceding the number. When configuring the destination pattern, set the dial string to match the local dial conventions.

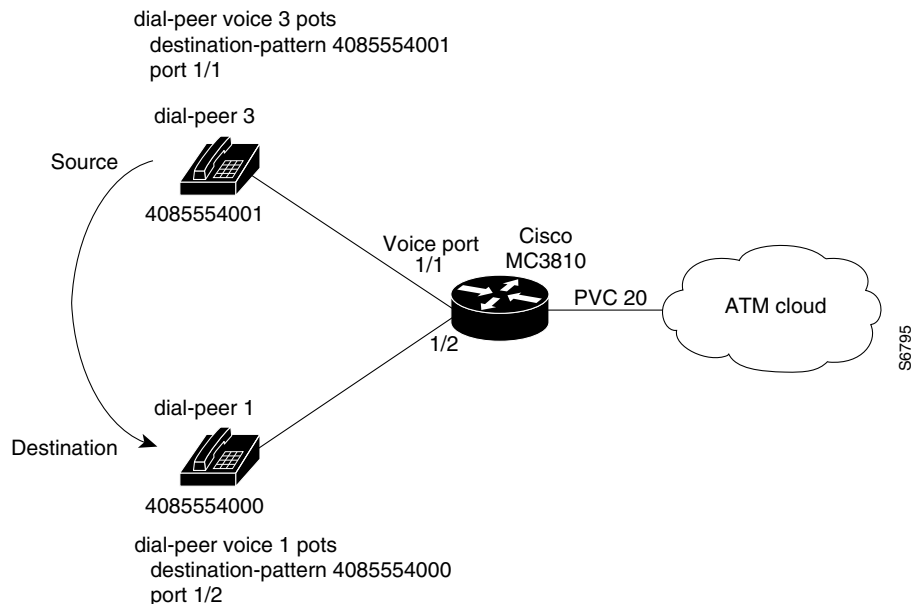
To complete the two-way communications loop, you need to configure VoATM dial peer 2 as shown in [Figure 6-3](#).

Figure 6-3 Calls from the Perspective of Cisco MC3810 No. 2



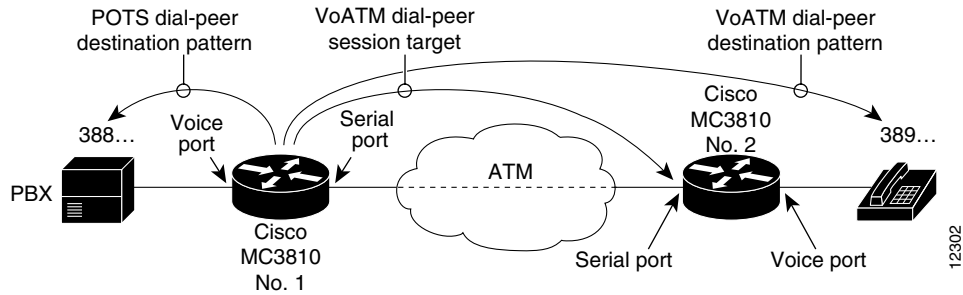
The only exception to this is when both POTS dial peers are connected to the same concentrator, as shown in Figure 6-4. In this circumstance, because both dial peers share the same destination IP address, you do not need to configure a VoATM dial peer.

Figure 6-4 Communication between Dial Peers Sharing the Same Concentrator

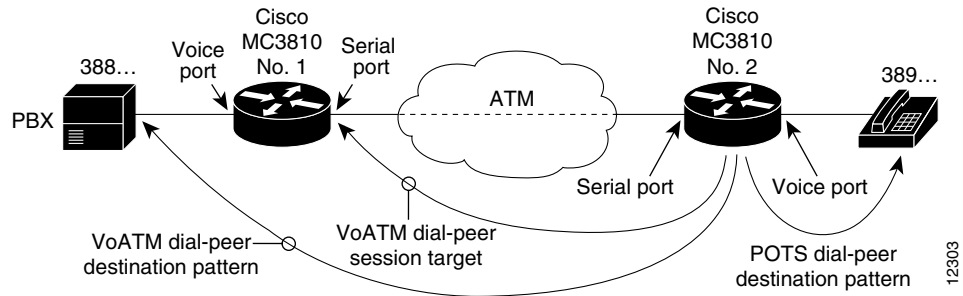


When configuring dial peers, you need to understand the relationship between the destination pattern and the session target. The destination pattern represents the pattern for the device at the voice connection endpoint, such as a telephone or a PBX. The session target represents the serial port on the peer Cisco MC3810 at the other end of the ATM connection. Figure 6-5 and Figure 6-6 show the relationship between the destination pattern and the session target, as seen from the perspective of both Cisco MC3810 concentrators in a VoATM configuration.

**Figure 6-5 Relationship between the Destination Pattern and Session Target from the Perspective of Cisco MC3810 No. 1**



**Figure 6-6 Relationship Between the Destination Pattern and Session Target from the Perspective of Cisco MC3810 No. 2**



The following sections describe how to configure POTS and VoATM peers.

## Configuring POTS Dial Peers

To configure a POTS dial peer, you need to uniquely identify the peer (by assigning it a unique tag number), define its telephone number, and associate it with a voice-port through which calls will be established. Under most circumstances, the default values for the remaining dial-peer configuration commands will be sufficient to establish connections.

Depending on your dial plan configuration, you may need to consider how to configure voice networks with variable-length dial plans, number expansion, excess digit ployout, forward digits and default voice routes, or use hunt groups with dial peer preferences. For more information on these topics, see [Chapter 9, “Voice Dial Plan Considerations.”](#)

To configure POTS peers, complete the following steps from global configuration mode:

Step	Command	Purpose
1	<code>router(config)# dial-peer voice tag pots</code>	<p>Define a POTS dial peer and enter dial-peer configuration mode. All subsequent commands that you enter in dial-peer voice mode before you exit will apply to this dial peer.</p> <p>The <i>tag</i> value identifies the dial peer and must be unique on the Cisco MC3810. Do not duplicate a specific <i>tag</i> number.</p>
2	<code>router(config)# destination-pattern string</code>	<p>Configure the dial peer's destination pattern.</p> <p>The <i>string</i> is a series of digits that specify the E.164 or private dialing plan telephone number. Valid entries are the digits 0–9 and the letters A–D. The following special characters can be entered in the string:</p> <ul style="list-style-type: none"> <li>• The star character (*) and the pound sign (#) that appear on standard touch-tone dial pads can be used in any dial string. However, these characters cannot be used as leading characters in a string (for example, *650).</li> <li>• The period (.) can be entered any time, and is used as a wildcard character. For more information see the “<a href="#">Destination Pattern Wildcards</a>” section on page 9-1.</li> <li>• The comma (,) can be used only in prefixes, and is used to insert a one-second pause or a delay.</li> <li>• The timer (T) character can be used to configure variable-length dial plans. For more information, see the “<a href="#">Variable-Length Dial Plans</a>” section on page 9-3.</li> </ul> <p>The plus symbol (+) is not a valid character in the string.</p>
3	<code>router(config-dialpeer)# port slot/port</code>	<p>Associate this POTS dial peer with a specific logical dial interface. Enter the <i>slot/port</i> number of the voice port connected to the POTS dial peer.</p>

### Configuring Dial Plan Options for the POTS Dial Peer

When you configure the dial plan, you have different options for how the dial plan is designed. For more information about dial plan strategies, see [Chapter 9, “Voice Dial Plan Considerations.”](#)

To configure dial plan options, complete one or more of the following steps from dial-peer configuration mode:

Step	Command	Purpose
1	<code>router(config-dialpeer)# num-exp extension-number extension-string</code>	(Optional) If using the number expansion feature, define how to expand an extension number into a particular destination pattern.
4	<code>router(config-dialpeer)# preference value</code>	(Optional) Configure a preference for the POTS dial peer. The value is a number from 0 to 10 where the lower the number, the higher the preference. If POTS and VoATM peers are mixed in the same hunt group, POTS dial peers will be searched first, even if a voice-network peer has a higher preference number.  For more information about hunt groups and preferences, see the <a href="#">“<i>Hunt Groups and Preference Configuration</i>”</a> section on page 9-6.
5	<code>router(config-dialpeer)# forward-digits {num-digit   all   implicit}</code>	(Optional) If using the forward-digits feature, configure the digit-forwarding method that will be used on the dial peer. The valid range for the number of digits forwarded ( <i>num-digit</i> ) is 0–32.  The default value is <b>implicit</b> , in which the exactly matched digits are not forwarded. Only digits matched by the wildcard pattern are forwarded.  For more information about forward-digits, see the <a href="#">“<i>Forward Digits and Voice Default Routes</i>”</a> section on page 9-4.
6	<code>router(config-dialpeer)# prefix string</code>	(Optional) If the forward-digits feature was not configured in the last step, assign the dialed digits prefix for the dial peer.

To configure the next POTS dial peer, exit dial-peer configuration mode by entering **exit**, and repeat the previous steps. To configure the VoATM dial peers, see the next section [“\*Configuring Voice over ATM Dial Peers\*.”](#)

## Configuring Voice over ATM Dial Peers

To configure a VoATM dial peer, you need to uniquely identify the peer (by assigning it a unique tag number), define the outgoing serial port number and the virtual circuit number.

Depending on your dial plan configuration, you may need to consider how to configure voice networks with variable length dial plans, number expansion, excess digit ployout, forward digits and default voice routes, or use hunt groups with dial peer preferences. For more information on these topics, see [Chapter 9, “\*Voice Dial Plan Considerations\*.”](#)

To configure VoATM dial peers, complete the following steps from global configuration mode:

Step	Command	Purpose
1	<code>router(config)# dial-peer voice tag voatm</code>	Define a VoATM dial peer for VoATM and enter dial-peer configuration mode.  The <i>tag</i> value identifies the dial peer and must be unique on the Cisco MC3810. Do not duplicate a specific <i>tag</i> number.
2	<code>router(config-dialpeer)# destination-pattern string</code>	Configure the dial peer's destination pattern. The same restrictions for the string listed in the POTS dial peer configuration also apply to the VoATM destination pattern.
3	<code>router(config-dialpeer)# session target ATM0 pvc [name]   [vpi/]vci]</code>	Configure the ATM session target for the dial peer. Make sure to specify ATM 0 as the interface for the PVC.
4	<code>router(config-dialpeer)# preference value</code>	(Optional) Configure a preference for the VoATM dial peer. The value is a number from 0–10 where the lower the number, the higher the preference.  For more information about hunt groups and preferences, see the <a href="#">“<i>Hunt Groups and Preference Configuration</i>”</a> section on page 9-6.
5	<code>router(config-dialpeer)# alt-dial string</code>	(Optional) Configure the alternate dial-out string when configuring on-net-to-off-net alternative dialing.

**Note**

The Cisco MC3810 supports ATM traffic over T1/E1 controller 0 only.

To configure the next VoATM dial peer, exit dial-peer configuration mode by entering **exit**, and repeat the previous steps.

## Verify Your Voice Connection

Verify that the voice connection is working by doing the following:

- Pick up the handset on a telephone connected to the configuration and verify that you can get a dial tone.
- Make a call from the local telephone to a configured dial peer and verify that the call attempt is successful.

You can check the validity of your dial-peer and voice-port configuration by performing the following tasks:

- If you have relatively few dial peers configured, you can use the **show dial-peer voice** command to verify that the data configured is correct.
- To show the status of the voice ports, use the **show voice port** command.
- To show the call status for all voice ports, use the **show voice call** command.
- To show the current status of all Digital Signaling Processor (DSP) voice channels, use the **show voice dsp** command.

## Troubleshooting Tips

If you are having trouble connecting a call and you suspect the problem is associated with the dial-peer configuration, you can try to resolve the problem by performing the following tasks:

- Use the **show dial-peer voice** command on the local and remote concentrators to verify that the data is configured correctly on both.
- Use the **show interface** command to verify that ATM interface 0 is up.
- Make sure the voice port, serial port, and/or controller T1 0 are set to **no shutdown**.

## Voice over ATM Configuration Examples

This section shows the following configuration examples for VoATM:

- [Example 1—Back-to-Back VoATM Example, page 6-13](#)
- [Example 2—Voice and Data Traffic over ATM Example, page 6-15](#)

### Example 1—Back-to-Back VoATM Example

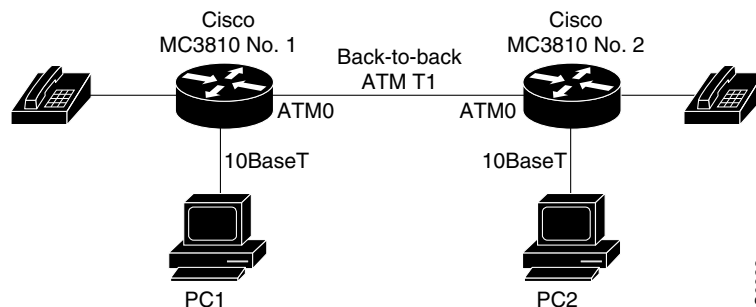
Figure 6-7 shows a configuration example for two Cisco MC3810 concentrators configured back-to-back for VoATM. This setup is useful to test your VoATM configuration locally to make sure voice connections can be made locally before configuring VoATM across a larger network. Following the figure are the commands required to configure the Cisco MC3810 concentrators in this example.



#### Note

There may be special considerations for configuring back-to-back ATM compared to configuring for an ATM network.

**Figure 6-7 Back-to-Back VoATM Configuration**



### Configuration for Cisco MC3810 No. 1

```
hostname location1

no ip domain-lookup

interface Ethernet0
 ip address 10.1.10.1 255.255.255.0
 no ip mroute-cache
 no ip route-cache
```

```

controller T1 0
  clock source internal
  mode atm

interface atm0 point-to-point
ip address 10.1.1.1 255.255.255.0
no ip mroute-cache

pvc 1 1 100
  encapsulation aal5mux voice
  vbr-rt 384 192 48

pvc 2 1 200
  encapsulation aal5snap
  map-group atm1

router rip
  redistribute connected
  network 10.0.0.0

no ip classless

map-list atm1
  ip 10.1.1.2 atm pvc 2 broadcast

line con 0
line aux 0
line vty 0 4
  password cisco
  login

dial-peer voice 1 pots
  destination-pattern 10
  port 1/1

dial-peer voice 202 voatm
  destination-pattern 2.
  session target ATMO 1

```

## Configuration for Cisco MC3810 No. 2

```

hostname location2

no ip domain-lookup

interface Ethernet0
ip address 10.1.20.1 255.255.255.0
no ip mroute-cache
no ip route-cache

controller T1 0
  clock source line
  mode atm

interface atm0 point-to-point
ip address 10.1.1.2 255.255.255.0
no ip mroute-cache

pvc 1 1 100
  encapsulation aal5mux voice
  vbr-rt 384 192 48

```

```

pvc 2 1 200
  encapsulation aal5snap
  map-group atm1

router rip
  redistribute connected
  network 10.0.0.0

no ip classless

map-list atm1
  ip 10.1.1.1 atm pvc 2 broadcast

dial-peer voice 1 pots
  destination-pattern 20
  port 1/1

dial-peer voice 202 voatm
  destination-pattern 1.
  session target ATM0 1

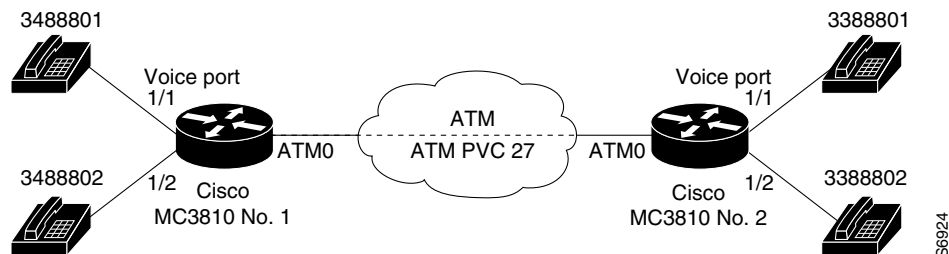
end

```

## Example 2—Voice and Data Traffic over ATM Example

Figure 6-8 shows an example for both voice and data traffic over ATM between two Cisco MC3810 concentrators, including configuration for voice ports and dial peers. Following the figure are the commands required to configure the Cisco MC3810 concentrators in this example.

**Figure 6-8 VoATM Configuration Example**



### Cisco MC3810 No. 1

```

interface Ethernet0
  ip address 172.22.124.239 255.255.0.0

controller T1 0
  mode ATM

interface atm0 point-to-point
  ip address 223.223.224.229 255.255.255.0
  no ip mroute-cache
  no ip route-cache
  map-group atm1

pvc 26 26 200
  encapsulation aal5snap

```

```

pvc 27 27 270
  encapsulation aal5mux voice
  vbr-rt 384 192 48

no ip classless

map-list atm1
  ip 223.223.224.228 atm pvc 26 broadcast

voice-port 1/1

voice-port 1/2

voice-port 1/3

voice-port 1/4

dial-peer voice 1 pots
  destination-pattern 3488801
  port 1/1

dial-peer voice 2 pots
  destination-pattern 3488802
  port 1/2

dial-peer voice 1001 voatm
  destination-pattern 338....
  session target ATM0 27

end

```

## Cisco MC3810 No. 2

```

interface Ethernet0
  ip address 172.22.124.247 255.255.0.0

controller T1 0
  mode ATM

interface atm0 point-to-point
  ip address 223.223.224.228 255.255.255.0
  no ip mroute-cache
  no ip route-cache
  map-group atm1

pvc 26 26 200
  encapsulation aal5snap

pvc 27 27 270
  encapsulation aal5mux voice
  vbr-rt 384 192 48

no ip classless

map-list atm1
  ip 223.223.224.229 atm pvc 26 broadcast

login
line vty 1 4
  login

```

```
voice-port 1/1

voice-port 1/2

voice-port 1/3

voice-port 1/4

dial-peer voice 1 pots
 destination-pattern 3388801
 port 1/1

dial-peer voice 2 pots
 destination-pattern 3388802
 port 1/2

dial-peer voice 1001 voatm
 destination-pattern 348...
 session target ATM0 27

end
```

