



## H.323 Signaling

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This section describes some basic call flows for the Cisco ATA:

- [Supported H.323 Messages, page D-1](#)
- [H.323 Signaling Scenarios, page D-2](#)



Note

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The term *Cisco ATA* is used throughout this manual to refer to both the Cisco ATA 186 and the Cisco ATA 188, unless differences between the Cisco ATA 186 and Cisco ATA 188 are explicitly stated.

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## Supported H.323 Messages

The Cisco ATA supports the following H.323 request methods:

- **Request**—When registering with an H.323 gatekeeper or Gateway, an individual H.323 endpoint must begin the process by sending a request message.
- **Confirm**—H.323 gatekeepers and Gateways authorize individual H.323 endpoints to access and send data over the H.323 network with explicit confirmation messages.
- **Reject**—In the event that an H.323 gatekeeper or Gateway is unable to grant access permission to an H.323 endpoint, a rejection message is sent and call setup is halted.
- **Setup**—Once access to the H.323 network has been granted, H.323 components contact remote H.323 components via setup messages, initiating two-way voice, video, or data communication.
- **Proceeding**—When a remote H.323 component acknowledges receipt of call initiation information and agrees to perform necessary subsequent setup for two-way voice, video, or data communication, it responds with a proceeding message.
- **Alerting**—When a remote H.323 endpoint has begun to notify the called party of an incoming call (the phone begins to ring at the far end), an alerting message is sent back to the calling party.
- **Connect**—When the called party answers the call (the phone goes off hook), the remote H.323 endpoint transmits a connecting message notifying the calling party that two-way communication is ready to commence.

## H.323 Signaling Scenarios

This section describes call flows for the following scenarios:

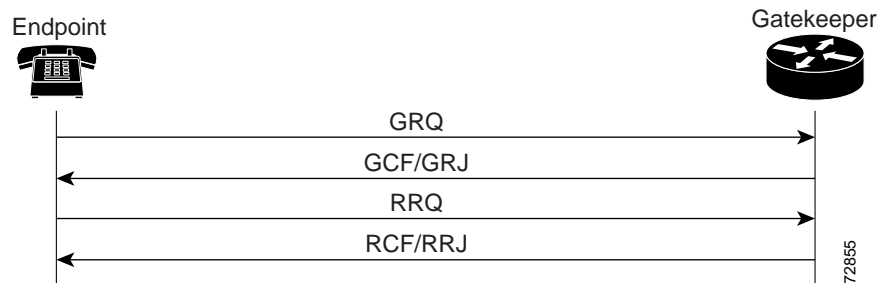
- [H.323 Endpoint-to-Gatekeeper Registration, page D-2](#)
- [H.323 Endpoint-to-Endpoint Call Setup with a Common Gatekeeper, page D-5](#)
- [H.323 Call Setup from H.323 Network to Circuit Switched Network, page D-14](#)

Each of the call flows includes a call diagram, action descriptions table, and a sample log file.

### H.323 Endpoint-to-Gatekeeper Registration

[Figure D-1](#) illustrates the Cisco ATA registering with an H.323 gatekeeper. This scenario features registration with no authentication.

*Figure D-1 Cisco ATA-to-H.323 Gatekeeper Registration*



*Table D-1 Action Descriptions*

Step	Action	Description
1.	Gatekeeper Request (GRQ)—Cisco ATA to H.323 gatekeeper	Cisco ATA sends a GRQ message to the H.323 gatekeeper to see if any gatekeepers are available for registration.
2.	Gatekeeper Confirmation (GCF) or gatekeeper Rejection (GRJ)—H.323 gatekeeper to Cisco ATA	H.323 gatekeeper returns a GCF or GRJ message, indicating whether or not the responding gatekeeper is able to register new Cisco ATA devices.
3.	Registration Request (RRQ)—Cisco ATA to H.323 gatekeeper	Cisco ATA sends a RRQ message to the H.323 gatekeeper in an attempt to register as part of that gatekeeper's zone.
4.	Registration Confirmation (RCF) or Registration Rejection (RRJ)—H.323 gatekeeper to Cisco ATA	H.323 gatekeeper returns a RCF or RRJ message, indicating whether or not the gatekeeper will add the Cisco ATA to its zone.

Table D-2 Log Listings

1.	<pre> value RasMessage ::= gatekeeperRequest : 3w2d: { 3w2d:   requestSeqNum 037472, 3w2d:   protocolIdentifier { 0 0 8 2250 0 2 }, 3w2d:   rasAddress ipAddress : 3w2d:     { 3w2d:       ip 'COA80267'H, 3w2d:       port 02712 3w2d:     }, 3w2d:   endpointType 3w2d:     { 3w2d:       gateway 3w2d:         { 3w2d:           protocol 3w2d:             { 3w2d:               voice : 3w2d:                 { 3w2d:                   supportedPrefixes 3w2d:                     { 3w2d:                       } 3w2d:                   } 3w2d:                 } 3w2d:             } 3w2d:         }, 3w2d:       mc FALSE, 3w2d:       undefinedNode FALSE 3w2d:     }, 3w2d:   gatekeeperIdentifier "c2600gk.komodo-tech.com", 3w2d:   endpointAlias 3w2d:     { 3w2d:       h323-ID : "c2600gw", 3w2d:       e164 : "14085551102", 3w2d:       e164 : "14088713483", 3w2d:       e164 : "14088713484", 3w2d:       e164 : "5551111", 3w2d:       e164 : "7771111", 3w2d:       e164 : "8881111" 3w2d:     } 3w2d: } </pre>
2.	<pre> 3w2d:value RasMessage ::= gatekeeperConfirm : 3w2d: { 3w2d:   requestSeqNum 037472, 3w2d:   protocolIdentifier { 0 0 8 2250 0 2 }, 3w2d:   gatekeeperIdentifier "c2600gk.komodo-tech.com", 3w2d:   rasAddress ipAddress : 3w2d:     { 3w2d:       ip 'COA80268'H, 3w2d:       port 01719 3w2d:     } 3w2d: } </pre>

Table D-2 Log Listings (continued)

```

3. value RasMessage ::= registrationRequest :
3w2d: {
3w2d:   requestSeqNum 02,
3w2d:   protocolIdentifier { 0 0 8 2250 0 2 },
3w2d:   discoveryComplete TRUE,
3w2d:   callSignalAddress
3w2d:   {
3w2d:     ipAddress :
3w2d:     {
3w2d:       ip 'C0A80260'H,
3w2d:       port 01720
3w2d:     }
3w2d:   },
3w2d:   rasAddress
3w2d:   {
3w2d:     ipAddress :
3w2d:     {
3w2d:       ip 'C0A80260'H,
3w2d:       port 01719
3w2d:     }
3w2d:   },
3w2d:   terminalType
3w2d:   {
3w2d:     vendor
3w2d:     {
3w2d:       vendor
3w2d:       {
3w2d:         t35CountryCode 05,
3w2d:         t35Extension 00,
3w2d:         manufacturerCode 020001
3w2d:       },
3w2d:       productId '4B6F6D6F646F204520466F6E65'H,
3w2d:       versionId '56657273696F6E20312E3130'H
3w2d:     },
3w2d:     terminal
3w2d:     {
3w2d:     },
3w2d:     mc FALSE,
3w2d:     undefinedNode FALSE
3w2d:   },
3w2d:   terminalAlias
3w2d:   {
3w2d:     h323-ID : "196"
3w2d:   },
3w2d:   endpointVendor
3w2d:   {
3w2d:     vendor
3w2d:     {
3w2d:       t35CountryCode 05,
3w2d:       t35Extension 00,
3w2d:       manufacturerCode 020001
3w2d:     },
3w2d:     productId '4B6F6D6F646F204520466F6E65'H,
3w2d:     versionId '56657273696F6E20312E3130'H
3w2d:   },
3w2d:   keepAlive FALSE,
3w2d:   willSupplyUUIEs FALSE
3w2d: }

4. 3w2d:value RasMessage ::= registrationConfirm :
3w2d: {
3w2d:   requestSeqNum 02,
3w2d:   protocolIdentifier { 0 0 8 2250 0 2 },
3w2d:   callSignalAddress
3w2d:   {
3w2d:   },
3w2d:   terminalAlias
3w2d:   {
3w2d:     h323-ID : "196"
3w2d:   },
3w2d:   gatekeeperIdentifier "c2600gk.komodo-tech.com",
3w2d:   endpointIdentifier "80F5235000009E12",
3w2d:   timeToLive 03548,
3w2d:   willRespondToIRR FALSE
3w2d: }

```

## H.323 Endpoint-to-Endpoint Call Setup with a Common Gatekeeper

Figure D-2 illustrates a Cisco ATA initiating a connection to another Cisco ATA that is registered with the same H.323 gatekeeper. This scenario features registration with no authentication.



Note

This scenario assumes that the H.323 configuration employs Slow Start Signaling with tunneling capability.

Figure D-2 H.323 Endpoint-to-Endpoint Call Setup with a Common Gatekeeper

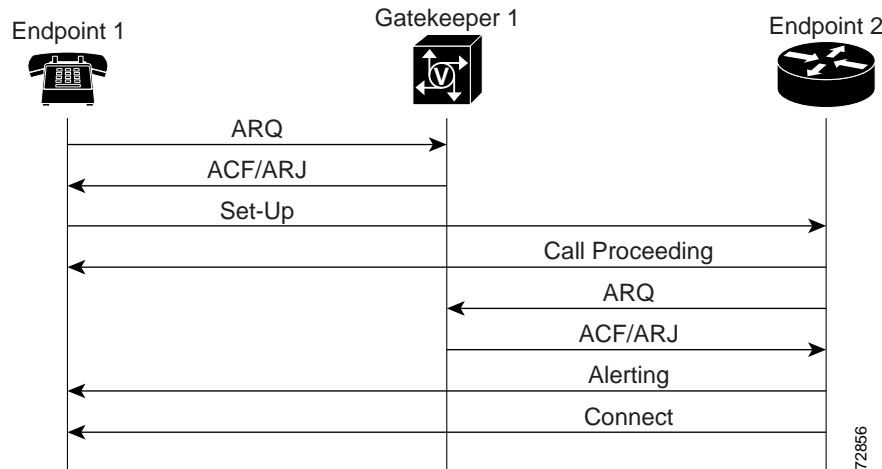


Table D-3 Action Descriptions

Step	Action	Description
1.	Local Admission Request (ARQ)—Local H.323 endpoint to H.323 gatekeeper	Cisco ATA sends a local ARQ message to the H.323 gatekeeper seeking authorization to place a call over the H.323 network.
2.	Local Admission Confirm (ACF) or Admission Reject (ARJ)—H.323 gatekeeper to the local H.323 endpoint	H.323 gatekeeper returns a ACF or ARJ message, indicating whether or not the responding gatekeeper is going to allow the Cisco ATA device access to the network.
3.	Open TCP Channel for Q.931 messaging	TCP port 1720 is opened, making way for the forward and reverse flow of Q.931 signaling messages between the H.323 endpoints.
4.	Q.931 Call Setup—Local H.323 endpoint to remote H.323 endpoint	Call setup initiates from the local H.323 endpoint.
5.	Q.931 Call Proceeding—Remote H.323 endpoint to local H.323 endpoint	Remote H.323 endpoint acknowledges call setup initiation.
6.	Remote Admission Request (ARQ)—Remote Cisco ATA to H.323 gatekeeper	(Somewhat simultaneous, chronologically, to call setup and call proceeding) remote H.323 endpoint contacts the common H.323 gatekeeper, seeking authorization to complete the two-way H.323 network call.
7.	Remote Admission Confirm (ACF) or Admission Reject (ARJ)—H.323 gatekeeper to the remote Cisco ATA	H.323 gatekeeper returns a ACF or ARJ message, indicating whether or not the responding gatekeeper is going to allow the Cisco ATA device access to the network.
8.	Q.931 Alerting—Remote H.323 endpoint to local H.323 endpoint	Status message is sent to calling H.323 endpoint advising that the called party has been notified (phone ringing).
9.	Q.931 Connect—Remote H.323 endpoint to local H.323 endpoint	Status message is sent to calling H.323 endpoint advising that the called party has answered the call (phone off hook).
10.	Open TCP Channel for H.245	Dynamically assigned TCP port is opened on both the local and remote H.323 endpoints, allowing for subsequent call setup activities (transmission and reception capability exchange, master-slave relationship determination, and so on).
11.	H.245 Terminal Capabilities	Various endpoint transmission and reception capabilities defining operation of voice, video, and data are exchanged and acknowledged to ensure consistent, reliable two-way communication between endpoints.
12.	H.245 Terminal Capabilities	
13.	H.245 Terminal Capabilities	
14.	H.245 Terminal Capabilities	
15.	Exchange of Master-Slave Determination Messages—Remote H.323 endpoint to local H.323 endpoint	Determines master and slave assignments between H.323 endpoints.
16.	H.245 Open Audio Logical Channel—Local H.323 endpoint to remote H.323 endpoint	Before actual transmission or reception of voice, video, or data, notification that the primary logical channel for the local H.323 endpoint has been opened, ensuring clear two-way communication.
17.	H.245 Open Audio Logical Channel Acknowledgement—Remote H.323 endpoint to local H.323 endpoint	Remote H.323 endpoint acknowledges readiness.

Table D-3 Action Descriptions (continued)

Step	Action	Description
18.	H.245 Open Audio Logical Channel—Remote H.323 endpoint to local H.323 endpoint	Before actual transmission or reception of voice, video, or data, notification that the primary logical channel for the remote H.323 endpoint has been opened, ensuring clear two-way communication.
19.	H.245 Open Audio Logical Channel Acknowledgement—Local H.323 endpoint to remote H.323 endpoint	Local H.323 endpoint acknowledges readiness.
20.	Bi-Directional Audio with Transcoding in the Endpoints	Two-way communication ensues between endpoints over the H.323 network.

Table D-4 Log Listings

1.	<pre> value RasMessage ::= registrationRequest : {   requestSeqNum 61357   protocolIdentifier { 0 0 8 2250 0 2 }   discoveryComplete FALSE   callSignalAddress   {   }   rasAddress   {     ipAddress :     {       ip 'COA80363'H       port 49450     }   }   terminalType   {     mc FALSE     undefinedNode FALSE   }   gatekeeperIdentifier {"zonetwo"}   endpointVendor   {     vendor     {       t35CountryCode 181       t35Extension 0       manufacturerCode 18     }   }   timeToLive 60   keepAlive TRUE   endpointIdentifier {"814EE09C0000001A"}   willSupplyUUIEs FALSE } </pre>
2.	<pre> value RasMessage ::= registrationConfirm : {   requestSeqNum 61357   protocolIdentifier { 0 0 8 2250 0 2 }   callSignalAddress   {   }   gatekeeperIdentifier {"zonetwo"}   endpointIdentifier {"814EE09C0000001A"}   alternateGatekeeper   {   }   timeToLive 60   willRespondToIRR FALSE } </pre>

Table D-4 Log Listings (continued)

3.	<pre> value H323_UserInformation ::= {   h323-uu-pdu   {     h323-message-body setup :     {       protocolIdentifier { 0 0 8 2250 0 2 }       sourceAddress       {         h323-ID :{"Firstname Lastname"}       }       sourceInfo       {         vendor         {           vendor           {             t35CountryCode 181             t35Extension 0             manufacturerCode 21324           }           productId '4D6963726F736F6674AE204E65744D656574696E...'H           versionId '332E3000'H         }         terminal         {           mc FALSE           undefinedNode FALSE         }         destinationAddress         {           e164 : "6661111"         }         activeMC FALSE         conferenceID '2E9B85298E88D611AD4600A0CC5C89F1'H         conferenceGoal create :NULL         callType pointToPoint :NULL         sourceCallSignalAddress ipAddress :         {           ip 'COA80209'H           port 4568         }         callIdentifier         {           guid '2D9B85298E88D611AD4600A0CC5C89F1'H         }         mediaWaitForConnect FALSE         canOverlapSend FALSE       }       nonStandardData       {         nonStandardIdentifier h221NonStandard :         {           t35CountryCode 181           t35Extension 0           manufacturerCode 21324         }         data '02000000280000000000000001B00000081384274...'H       }     }   } } </pre>
4.	<pre> value ARQnonStandardInfo ::= {   sourceAlias   {   }   sourceExtAlias   {   }   displayInformationElement "Firstname Lastname"   interfaceSpecificBillingId "FXS 1/1/0" } </pre>

Table D-4 Log Listings (continued)

5.	<pre> value RasMessage ::= admissionRequest : {   requestSeqNum 61358   callType pointToPoint :NULL   callModel direct :NULL   endpointIdentifier {"814EE09C0000001A"}   destinationInfo   {     e164 : "66611111"   }   srcInfo   {     h323-ID : {"Firstname Lastname"}   }   srcCallSignalAddress ipAddress :   {     ip 'COA80209'H     port 4568   }   bandwidth 640   callReferenceValue 215   nonStandardData   {     nonStandardIdentifier h221NonStandard :     {       t35CountryCode 181       t35Extension 0       manufacturerCode 18     }     data '8000000860132246697273746E616D65204C6173...'H   }   conferenceID '2E9B85298E88D611AD4600A0CC5C89F1'H   activeMC FALSE   answerCall TRUE   canMapAlias TRUE   callIdentifier   {     guid '2D9B85298E88D611AD4600A0CC5C89F1'H   }   willSupplyUUIEs FALSE } </pre>
6.	<pre> value RasMessage ::= admissionConfirm : {   requestSeqNum 61358   bandwidth 1   callModel direct :NULL   destCallSignalAddress ipAddress :   {     ip 'COA80363'H     port 1720   }   irrFrequency 240   willRespondToIRR FALSE   uuiEsRequested   {     setup FALSE     callProceeding FALSE     connect FALSE     alerting FALSE     information FALSE     releaseComplete FALSE     facility FALSE     progress FALSE     empty FALSE   } } </pre>

Table D-4 Log Listings (continued)

7.	<pre> value H323_UserInformation ::= {   h323-uu-pdu   {     h323-message-body callProceeding :     {       protocolIdentifier { 0 0 8 2250 0 2 }       destinationInfo       {         mc FALSE         undefinedNode FALSE       }       h245Address ipAddress :       {         ip 'COA80363'H         port 11201       }       callIdentifier       {         guid '2D9B85298E88D611AD4600A0CC5C89F1'H       }     }     h245Tunneling FALSE   } } </pre>
8.	<pre> value H323_UU_NonStdInfo ::= {   version 16   protoParam qsigNonStdInfo :   {     iei 30     rawMesg '1E028188'H   } } </pre>
9.	<pre> value H323_UserInformation ::= {   h323-uu-pdu   {     h323-message-body progress :     {       protocolIdentifier { 0 0 8 2250 0 2 }       destinationInfo       {         mc FALSE         undefinedNode FALSE       }       h245Address ipAddress :       {         ip 'COA80363'H         port 11201       }       callIdentifier       {         guid '2D9B85298E88D611AD4600A0CC5C89F1'H       }     }     h245Tunneling FALSE     nonStandardControl     {       {         nonStandardIdentifier h221NonStandard :         {           t35CountryCode 181           t35Extension 0           manufacturerCode 18         }         data '60011000011E041E028188'H       }     }   } } </pre>

Table D-4 Log Listings (continued)

10.	<pre> value H323_UU_NonStdInfo ::= {   version 0   progIndParam progIndIEInfo :   {     progIndIE '00000002'H   } } </pre>
11.	<pre> value H323_UserInformation ::= {   h323-uu-pdu   {     h323-message-body connect :     {       protocolIdentifier { 0 0 8 2250 0 2 }       h245Address ipAddress :       {         ip 'C0A80363'H         port 11201       }       destinationInfo       {         gateway         {           protocol           {             voice :             {               supportedPrefixes               {                 {                   prefix e164 : "1#"                 }               }             }           }         }         mc FALSE         undefinedNode FALSE       }       conferenceID '2E9B85298E88D611AD4600A0CC5C89F1'H       callIdentifier       {         guid '2D9B85298E88D611AD4600A0CC5C89F1'H       }       h245Tunneling FALSE       nonStandardControl       {         {           nonStandardIdentifier h221NonStandard :           {             t35CountryCode 181             t35Extension 0             manufacturerCode 18           }           data 'C00100028006000400000002'H         }       }     }   } } </pre>
12.	<pre> value IRRperCallnonStandardInfo ::= {   startTime 1024959117 } </pre>

Table D-4 Log Listings (continued)

```

13. value RasMessage ::= infoRequestResponse :
    {
        requestSeqNum 61359
        endpointType
        {
            gateway
            {
                protocol
                {
                    voice :
                    {
                        supportedPrefixes
                        {
                            {
                                prefix e164 : "1#"
                            }
                        }
                    }
                }
            }
        }
        mc FALSE
        undefinedNode FALSE
    }
    endpointIdentifier {"814EE09C0000001A"}
    rasAddress ipAddress :
    {
        ip 'COA80363'H
        port 49450
    }
    callSignalAddress
    {
        ipAddress :
        {
            ip 'COA80363'H
            port 1720
        }
    }
    endpointAlias
    {
        e164 : "6661111",
        e164 : "6663333",
        h323-ID : {"zonetwo"}
    }
    perCallInfo
    {
        {
            nonStandardData
            {
                nonStandardIdentifier h221NonStandard :
                {
                    t35CountryCode 181
                    t35Extension 0
                    manufacturerCode 18
                }
                data '703D17A28D'H
            }
            callReferenceValue 215
            conferenceID '2E9B85298E88D611AD4600A0CC5C89F1'H
            h245
            {
            }
            callSignaling
            {
            }
            callType pointToPoint : NULL
            bandwidth 1
            callModel direct : NULL
            callIdentifier
            {
                guid '2D9B85298E88D611AD4600A0CC5C89F1'H
            }
        }
    }
    needResponse FALSE
}

```

Table D-4 Log Listings (continued)

14.	<pre> value H323_UserInformation ::= {   h323-uu-pdu   {     h323-message-body releaseComplete :     {       protocolIdentifier { 0 0 8 2250 0 2 }       reason undefinedReason :NULL       callIdentifier       {         guid '2D9B85298E88D611AD4600A0CC5C89F1'H       }     }   } } </pre>
15.	<pre> value RasMessage ::= disengageRequest : {   requestSeqNum 61360   endpointIdentifier {"814EE09C0000001A"}   conferenceID '2E9B85298E88D611AD4600A0CC5C89F1'H   callReferenceValue 215   disengageReason normalDrop :NULL   callIdentifier   {     guid '2D9B85298E88D611AD4600A0CC5C89F1'H   }   answeredCall TRUE } </pre>
16.	<pre> value RasMessage ::= disengageConfirm : {   requestSeqNum 61360 } </pre>

Table D-4 Log Listings (continued)

17.	<pre> value RasMessage ::= registrationRequest : {   requestSeqNum 61361   protocolIdentifier { 0 0 8 2250 0 2 }   discoveryComplete FALSE   callSignalAddress   {   }   rasAddress   {     ipAddress :     {       ip 'C0A80363'H       port 49450     }   }   terminalType   {     mc FALSE     undefinedNode FALSE   }   gatekeeperIdentifier {"zonetwo"}   endpointVendor   {     vendor     {       t35CountryCode 181       t35Extension 0       manufacturerCode 18     }   }   timeToLive 60   keepAlive TRUE   endpointIdentifier {"814EE09C0000001A"}   willSupplyUIEs FALSE } </pre>
18.	<pre> value RasMessage ::= registrationConfirm : {   requestSeqNum 61361   protocolIdentifier { 0 0 8 2250 0 2 }   callSignalAddress   {   }   gatekeeperIdentifier {"zonetwo"}   endpointIdentifier {"814EE09C0000001A"}   alternateGatekeeper   {   }   timeToLive 60   willRespondToIRR FALSE } </pre>

## H.323 Call Setup from H.323 Network to Circuit Switched Network

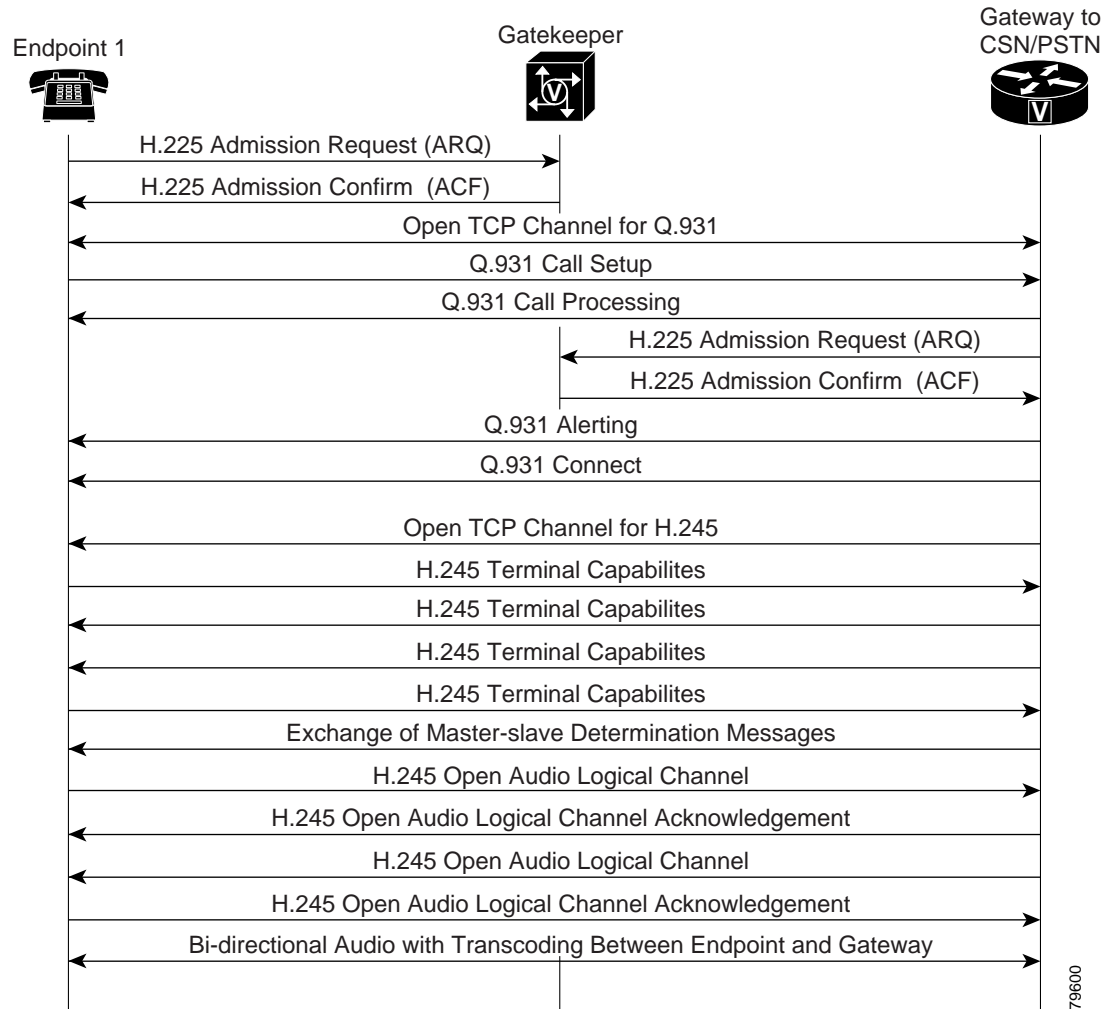
Figure D-3 illustrates a Cisco ATA initiating a connection to a Circuit Switched Network (CSN) or Public Switched Telephone Network (PSTN) Gateway router through its local H.323 gatekeeper.



### Note

This scenario assumes that the H.323 configuration employs Fast Start Signaling with tunneling capability.

Figure D-3 H.323 Call Setup from H.323 Network to Circuit Switched Network



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Table D-5 Action Descriptions

Step	Action	Description
1.	Local Admission Request (ARQ)—Local endpoint to H.323 gatekeeper	Cisco ATA sends a local ARQ message to the H.323 gatekeeper seeking authorization to place a call over the H.323 network.
2.	Local Admission Confirm (ACF) or Admission Reject (ARJ)—H.323 gatekeeper to the local endpoint	H.323 gatekeeper returns a ACF or ARJ message, indicating whether or not the responding gatekeeper is going to allow the Cisco ATA device access to the network.
3.	Open TCP Channel for Q.931 messaging	TCP port 1720 is opened, making way for the forward and reverse flow of Q.931 signaling messages between the H.323 endpoint and the CSN/PSTN Gateway.
4.	Q.931 Call Setup—Local H.323 endpoint to remote H.323 endpoint	Call setup initiates from the local H.323 endpoint.
5.	Q.931 Call Proceeding—Remote H.323 endpoint to local H.323 endpoint	Gateway acknowledges call setup initiation.

Table D-5 Action Descriptions (continued)

Step	Action	Description
6.	Gateway Admission Request (ARQ)—CSN/PSTN Gateway to H.323 gatekeeper	(Somewhat simultaneous, chronologically, to call setup and call proceeding) Gateway contacts the common H.323 gatekeeper, seeking authorization to complete the two-way H.323 network-to-CSN/PSTN Gateway call.
7.	Gateway Admission Confirm (ACF) or Admission Reject (ARJ)—H.323 gatekeeper to CSN/PSTN Gateway	H.323 gatekeeper returns a ACF or ARJ message, indicating whether or not the responding gatekeeper is going to allow the Gateway access to the network.
8.	Q.931 Alerting—Gateway endpoint to local H.323 endpoint	Status message is sent to calling H.323 endpoint advising that the called party has been notified (phone ringing).
9.	Q.931 Connect—Gateway to local H.323 endpoint	Status message is sent to calling H.323 endpoint advising that the called party has answered the call (phone off hook).
10.	Open TCP Channel for H.245	Dynamically assigned TCP port is opened on both the local H.323 endpoint and the Gateway, allowing for subsequent call setup activities (transmission and reception capability exchange, master-slave relationship determination, and so on).
11.	H.245 Terminal Capabilities	Various endpoint transmission and reception capabilities defining operation of voice, video, and data are exchanged and acknowledged to ensure consistent, reliable two-way communication between the H.323 endpoint and the Gateway.
12.	H.245 Terminal Capabilities	
13.	H.245 Terminal Capabilities	
14.	H.245 Terminal Capabilities	
15.	Exchange of Master-Slave Determination Messages—Remote H.323 endpoint to local H.323 endpoint	Determines master and slave assignments between the H.323 endpoint and the Gateway.
16.	H.245 Open Audio Logical Channel—Local H.323 endpoint to remote H.323 endpoint	Before actual transmission or reception of voice, video, or data, notification that the primary logical channel for the local H.323 endpoint has been opened, ensuring clear two-way communication.
17.	H.245 Open Audio Logical Channel Acknowledgement—Remote H.323 endpoint to local H.323 endpoint	Gateway acknowledges readiness.
18.	H.245 Open Audio Logical Channel—Remote H.323 endpoint to local H.323 endpoint	Before actual transmission or reception of voice, video, or data, notification that the primary logical channel for the Gateway has been opened, ensuring clear two-way communication.
19.	H.245 Open Audio Logical Channel Acknowledgement—Local H.323 endpoint to remote H.323 endpoint	Local H.323 endpoint acknowledges readiness.
20.	Bi-Directional Audio with Transcoding Between Endpoint and Gateway	Two-way communication ensues between the local H.323 endpoint and the CSN/PSTN Gateway.

Table D-6 Log Listings

1.	<pre> value RasMessage ::= registrationRequest : {   requestSeqNum 28034   protocolIdentifier { 0 0 8 2250 0 2 }   discoveryComplete FALSE   callSignalAddress   {   }   rasAddress   {     ipAddress :     {       ip 'COA80363'H       port 49450     }   }   terminalType   {     mc FALSE     undefinedNode FALSE   }   gatekeeperIdentifier {"zonetwo"}   endpointVendor   {     vendor     {       t35CountryCode 181       t35Extension 0       manufacturerCode 18     }   }   timeToLive 60   keepAlive TRUE   endpointIdentifier {"814EE09C0000001A"}   willSupplyUUIEs FALSE } </pre>
2.	<pre> value RasMessage ::= registrationConfirm : {   requestSeqNum 28034   protocolIdentifier { 0 0 8 2250 0 2 }   callSignalAddress   {   }   gatekeeperIdentifier {"zonetwo"}   endpointIdentifier {"814EE09C0000001A"}   alternateGatekeeper   {   }   timeToLive 60   willRespondToIRR FALSE } </pre>

Table D-6 Log Listings (continued)

3.	<pre> value H323_UserInformation ::= {   h323-uu-pdu   {     h323-message-body setup :     {       protocolIdentifier { 0 0 8 2250 0 2 }       sourceAddress       {         h323-ID :{"Firstname Lastname"}       }       sourceInfo       {         vendor         {           vendor           {             t35CountryCode 181             t35Extension 0             manufacturerCode 21324           }           productId '4D6963726F736F6674AE204E65744D656574696E...'H           versionId '332E3000'H         }         terminal         {           mc FALSE           undefinedNode FALSE         }         destinationAddress         {           e164 : "914089023833"         }         activeMC FALSE         conferenceID '0C01EF01BD95D611AD4600A0CC5C89F1'H         conferenceGoal create :NULL         callType pointToPoint :NULL         sourceCallSignalAddress ipAddress :         {           ip 'COA80209'H           port 4595         }         callIdentifier         {           guid '0B01EF01BD95D611AD4600A0CC5C89F1'H         }         mediaWaitForConnect FALSE         canOverlapSend FALSE       }       nonStandardData       {         nonStandardIdentifier h221NonStandard :         {           t35CountryCode 181           t35Extension 0           manufacturerCode 21324         }         data '02000000280000000000000001B00000081384274...'H       }     }   } } </pre>
4.	<pre> value ARQnonStandardInfo ::= {   sourceAlias   {   }   sourceExtAlias   {   }   displayInformationElement "Firstname Lastname"   interfaceSpecificBillingId "FXS 1/1/1" } </pre>

Table D-6 Log Listings (continued)

5.	<pre> value RasMessage ::= admissionRequest : {   requestSeqNum 28037   callType pointToPoint :NULL   callModel direct :NULL   endpointIdentifier {"814EE09C0000001A"}   destinationInfo   {     e164 : "914089023833"   }   srcInfo   {     h323-ID : {"Firstname Lastname"}   }   srcCallSignalAddress ipAddress :   {     ip 'COA80209'H     port 4595   }   bandwidth 640   callReferenceValue 235   nonStandardData   {     nonStandardIdentifier h221NonStandard :     {       t35CountryCode 181       t35Extension 0       manufacturerCode 18     }     data '8000000860132246697273746E616D65204C6173...'H   }   conferenceID '0C01EF01BD95D611AD4600A0CC5C89F1'H   activeMC FALSE   answerCall TRUE   canMapAlias TRUE   callIdentifier   {     guid '0B01EF01BD95D611AD4600A0CC5C89F1'H   }   willSupplyUUIEs FALSE } </pre>
6.	<pre> value RasMessage ::= admissionConfirm : {   requestSeqNum 28037   bandwidth 1   callModel direct :NULL   destCallSignalAddress ipAddress :   {     ip 'COA80363'H     port 1720   }   irrFrequency 240   willRespondToIRR FALSE   uuiEsRequested   {     setup FALSE     callProceeding FALSE     connect FALSE     alerting FALSE     information FALSE     releaseComplete FALSE     facility FALSE     progress FALSE     empty FALSE   } } </pre>

Table D-6 Log Listings (continued)

7.	<pre> value H323_UserInformation ::= {   h323-uu-pdu   {     h323-message-body callProceeding :     {       protocolIdentifier { 0 0 8 2250 0 2 }       destinationInfo       {         mc FALSE         undefinedNode FALSE       }       h245Address ipAddress :       {         ip 'COA80363'H         port 11218       }       callIdentifier       {         guid '0B01EF01BD95D611AD4600A0CC5C89F1'H       }     }     h245Tunneling FALSE   } } </pre>
8.	<pre> value H323_UU_NonStdInfo ::= {   version 16   protoParam qsigNonStdInfo :   {     iei 30     rawMesg '1E028188'H   } } </pre>
9.	<pre> value H323_UserInformation ::= {   h323-uu-pdu   {     h323-message-body progress :     {       protocolIdentifier { 0 0 8 2250 0 2 }       destinationInfo       {         mc FALSE         undefinedNode FALSE       }       h245Address ipAddress :       {         ip 'COA80363'H         port 11218       }       callIdentifier       {         guid '0B01EF01BD95D611AD4600A0CC5C89F1'H       }     }     h245Tunneling FALSE     nonStandardControl     {       {         nonStandardIdentifier h221NonStandard :         {           t35CountryCode 181           t35Extension 0           manufacturerCode 18         }         data '60011000011E041E028188'H       }     }   } } </pre>

Table D-6 Log Listings (continued)

```

10. value H323_UserInformation ::=
    {
      h323-uu-pdu
      {
        h323-message-body connect :
        {
          protocolIdentifier { 0 0 8 2250 0 2 }
          h245Address ipAddress :
          {
            ip 'C0A80363'H
            port 11218
          }
          destinationInfo
          {
            gateway
            {
              protocol
              {
                voice :
                {
                  supportedPrefixes
                  {
                    {
                      prefix e164 : "1#"
                    }
                  }
                }
              }
            }
            mc FALSE
            undefinedNode FALSE
          }
          conferenceID '0C01EF01BD95D611AD4600A0CC5C89F1'H
          callIdentifier
          {
            guid '0B01EF01BD95D611AD4600A0CC5C89F1'H
          }
        }
        h245Tunneling FALSE
        nonStandardControl
        {
          {
            nonStandardIdentifier h221NonStandard :
            {
              t35CountryCode 181
              t35Extension 0
              manufacturerCode 18
            }
            data 'C001000280060004000000002'H
          }
        }
      }
    }

```

Table D-6 Log Listings (continued)

```

11. value RasMessage ::= infoRequestResponse :
    {
        requestSeqNum 28038
        endpointType
        {
            gateway
            {
                protocol
                {
                    voice :
                    {
                        supportedPrefixes
                        {
                            {
                                prefix e164 : "1#"
                            }
                        }
                    }
                }
            }
        }
        mc FALSE
        undefinedNode FALSE
    }
    endpointIdentifier {"814EE09C0000001A"}
    rasAddress ipAddress :
    {
        ip 'COA80363'H
        port 49450
    }
    callSignalAddress
    {
        ipAddress :
        {
            ip 'COA80363'H
            port 1720
        }
    }
    endpointAlias
    {
        e164 : "6661111",
        e164 : "6663333",
        h323-ID : {"zonetwo"}
    }
    perCallInfo
    {
        {
            nonStandardData
            {
                nonStandardIdentifier h221NonStandard :
                {
                    t35CountryCode 181
                    t35Extension 0
                    manufacturerCode 18
                }
                data '703D2DC1A0'H
            }
            callReferenceValue 235
            conferenceID '0C01EF01BD95D611AD4600A0CC5C89F1'H
            h245
            {
            }
            callSignaling
            {
            }
            callType pointToPoint : NULL
            bandwidth 1
            callModel direct : NULL
            callIdentifier
            {
                guid '0B01EF01BD95D611AD4600A0CC5C89F1'H
            }
        }
    }
    needResponse FALSE
}

```

**Table D-6 Log Listings (continued)**

12.	<pre>value H323_UU_NonStdInfo ::= {   version 0   progIndParam progIndIEInfo :   {     progIndIE '00000002'H   } }</pre>
13.	<pre>value IRRperCallnonStandardInfo ::= {   startTime 1026408864 }</pre>

Table D-6 Log Listings (continued)

```

14. value MultimediaSystemControlMessage ::= request :terminalCapabilitySet :
    {
      sequenceNumber 1
      protocolIdentifier { 0 0 8 245 0 3 }
      multiplexCapability h2250Capability :
      {
        maximumAudioDelayJitter 20
        receiveMultipointCapability
        {
          multicastCapability FALSE
          multiUniCastConference FALSE
          mediaDistributionCapability
          {
            {
              centralizedControl FALSE
              distributedControl FALSE
              centralizedAudio FALSE
              distributedAudio FALSE
              centralizedVideo FALSE
              distributedVideo FALSE
            }
          }
        }
      }
      transmitMultipointCapability
      {
        multicastCapability FALSE
        multiUniCastConference FALSE
        mediaDistributionCapability
        {
          {
            centralizedControl FALSE
            distributedControl FALSE
            centralizedAudio FALSE
            distributedAudio FALSE
            centralizedVideo FALSE
            distributedVideo FALSE
          }
        }
      }
      receiveAndTransmitMultipointCapability
      {
        multicastCapability FALSE
        multiUniCastConference FALSE
        mediaDistributionCapability
        {
          {
            centralizedControl FALSE
            distributedControl FALSE
            centralizedAudio FALSE
            distributedAudio FALSE
            centralizedVideo FALSE
            distributedVideo FALSE
          }
        }
      }
      mcCapability
      {
        centralizedConferenceMC FALSE
        decentralizedConferenceMC FALSE
      }
      rtcpVideoControlCapability FALSE
      mediaPacketizationCapability
      {
        h261aVideoPacketization FALSE
      }
      logicalChannelSwitchingCapability FALSE
      t120DynamicPortCapability FALSE
    }
    capabilityTable
    {

```

Table D-6 Log Listings (continued)

	<pre> {   capabilityTableEntryNumber 17   capability receiveAndTransmitDataApplicationCapability :   {     application nonStandard :     {       nonStandardIdentifier h221NonStandard :       {         t35CountryCode 181         t35Extension 0         manufacturerCode 18       }       data '52747044746D6652656C6179'H     }     maxBitRate 0   } }, {   capabilityTableEntryNumber 23   capability receiveUserInputCapability :hookflash :NULL }, {   capabilityTableEntryNumber 22   capability receiveUserInputCapability :dtmf :NULL }, {   capabilityTableEntryNumber 19   capability receiveUserInputCapability :basicString :NULL }, {   capabilityTableEntryNumber 2   capability receiveAudioCapability :g711Alaw64k :20 } } capabilityDescriptors {   {     capabilityDescriptorNumber 1     simultaneousCapabilities     {       {         23       },       {         22,         19,         17       },       {         2       }     }   } } </pre>
15.	<pre> value MultimediaSystemControlMessage ::= request :masterSlaveDetermination : {   terminalType 60   statusDeterminationNumber 5917 } </pre>

Table D-6 Log Listings (continued)

```

16. value MultimediaSystemControlMessage ::= request :terminalCapabilitySet :
    {
        sequenceNumber 1
        protocolIdentifier { 0 0 8 245 0 3 }
        multiplexCapability h2250Capability :
        {
            maximumAudioDelayJitter 60
            receiveMultipointCapability
            {
                multicastCapability FALSE
                multiUniCastConference FALSE
                mediaDistributionCapability
                {
                    {
                        centralizedControl FALSE
                        distributedControl FALSE
                        centralizedAudio FALSE
                        distributedAudio FALSE
                        centralizedVideo FALSE
                        distributedVideo FALSE
                    }
                }
            }
            transmitMultipointCapability
            {
                multicastCapability FALSE
                multiUniCastConference FALSE
                mediaDistributionCapability
                {
                    {
                        centralizedControl FALSE
                        distributedControl FALSE
                        centralizedAudio FALSE
                        distributedAudio FALSE
                        centralizedVideo FALSE
                        distributedVideo FALSE
                    }
                }
            }
            receiveAndTransmitMultipointCapability
            {
                multicastCapability FALSE
                multiUniCastConference FALSE
                mediaDistributionCapability
                {
                    {
                        centralizedControl FALSE
                        distributedControl FALSE
                        centralizedAudio FALSE
                        distributedAudio FALSE
                        centralizedVideo FALSE
                        distributedVideo FALSE
                    }
                }
            }
            mcCapability
            {
                centralizedConferenceMC FALSE
                decentralizedConferenceMC FALSE
            }
            rtcpVideoControlCapability FALSE
            mediaPacketizationCapability
            {
                h261aVideoPacketization FALSE
            }
        }
        capabilityTable
        {

```

Table D-6 Log Listings (continued)

```

{
  capabilityTableEntryNumber 32768
  capability nonStandard :
  {
    nonStandardIdentifier h221NonStandard :
    {
      t35CountryCode 181
      t35Extension 66
      manufacturerCode 32896
    }
    data '01'H
  }
},
{
  capabilityTableEntryNumber 15
  capability receiveAndTransmitDataApplicationCapability :
  {
    application t120 :separateLANStack :NULL
    maxBitRate 621700
  }
},
{
  capabilityTableEntryNumber 1
  capability receiveAudioCapability :nonStandard :
  {
    nonStandardIdentifier h221NonStandard :
    {
      t35CountryCode 181
      t35Extension 0
      manufacturerCode 21324
    }
    data '020000000000F4010000F4010100040000000000...'H
  }
},
{
  capabilityTableEntryNumber 2
  capability receiveAudioCapability :g711Alaw64k :180
},
{
  capabilityTableEntryNumber 3
  capability receiveAudioCapability :g711Ulaw64k :180
},
{
  capabilityTableEntryNumber 4
  capability receiveAudioCapability :nonStandard :
  {
    nonStandardIdentifier h221NonStandard :
    {
      t35CountryCode 181
      t35Extension 0
      manufacturerCode 21324
    }
    data '020000000000A0000000A000040010000000000...'H
  }
},
{
  capabilityTableEntryNumber 5
  capability receiveAudioCapability :nonStandard :
  {
    nonStandardIdentifier h221NonStandard :
    {
      t35CountryCode 181
      t35Extension 0
      manufacturerCode 21324
    }
    data '020000000000A0000000A000040010000000000...'H
  }
},
{
  capabilityTableEntryNumber 6
  capability receiveAudioCapability :nonStandard :
  {
    nonStandardIdentifier h221NonStandard :
    {
      t35CountryCode 181
      t35Extension 0
      manufacturerCode 21324
    }
  }
}

```

Table D-6 Log Listings (continued)

```

}
    data '0200000000008000000080000500140000000000...'H
  }
},
{
  capabilityTableEntryNumber 7
  capability receiveAudioCapability :nonStandard :
  {
    nonStandardIdentifier h221NonStandard :
    {
      t35CountryCode 181
      t35Extension 0
      manufacturerCode 21324
    }
  }
  data '0200000000008000000080000500140000000000...'H
}
},
{
  capabilityTableEntryNumber 8
  capability receiveAudioCapability :g7231 :
  {
    maxAl-sduAudioFrames 12
    silenceSuppression FALSE
  }
},
{
  capabilityTableEntryNumber 10
  capability receiveVideoCapability :h263VideoCapability :
  {
    sqcifMPI 1
    maxBitRate 6217
    unrestrictedVector FALSE
    arithmeticCoding FALSE
    advancedPrediction FALSE
    pbFrames FALSE
    temporalSpatialTradeOffCapability TRUE
  }
},
{
  capabilityTableEntryNumber 11
  capability receiveVideoCapability :h263VideoCapability :
  {
    qcifMPI 1
    maxBitRate 6217
    unrestrictedVector FALSE
    arithmeticCoding FALSE
    advancedPrediction FALSE
    pbFrames FALSE
    temporalSpatialTradeOffCapability TRUE
  }
},
{
  capabilityTableEntryNumber 12
  capability receiveVideoCapability :h263VideoCapability :
  {
    cifMPI 2
    maxBitRate 6217
    unrestrictedVector FALSE
    arithmeticCoding FALSE
    advancedPrediction FALSE
    pbFrames FALSE
    temporalSpatialTradeOffCapability TRUE
  }
},
{
  capabilityTableEntryNumber 13
  capability receiveVideoCapability :h261VideoCapability :
  {
    qcifMPI 1
    temporalSpatialTradeOffCapability TRUE
    maxBitRate 6217
    stillImageTransmission FALSE
  }
},
},

```

Table D-6 Log Listings (continued)

```

{
  capabilityTableEntryNumber 14
  capability receiveVideoCapability :h261VideoCapability :
  {
    cifMPI 2
    temporalSpatialTradeOffCapability TRUE
    maxBitRate 6217
    stillImageTransmission FALSE
  }
}
}
capabilityDescriptors
{
  {
    capabilityDescriptorNumber 6
    simultaneousCapabilities
    {
      {
        8,
        7,
        5,
        6,
        3,
        2,
        1,
        4
      },
      {
        10
      },
      {
        15
      }
    }
  },
  {
    capabilityDescriptorNumber 7
    simultaneousCapabilities
    {
      {
        8,
        7,
        5,
        6,
        3,
        2,
        1,
        4
      },
      {
        11
      },
      {
        15
      }
    }
  },
  {
    capabilityDescriptorNumber 8
    simultaneousCapabilities
    {

```

Table D-6 Log Listings (continued)

```

{
    8,
    7,
    5,
    6,
    3,
    2,
    1,
    4
},
{
    13
},
{
    15
}
},
{
    capabilityDescriptorNumber 9
    simultaneousCapabilities
    {
        {
            8,
            7,
            5,
            6,
            3,
            2,
            1,
            4
        },
        {
            12
        },
        {
            15
        }
    }
},
{
    capabilityDescriptorNumber 10
    simultaneousCapabilities
    {
        {
            8,
            7,
            5,
            6,
            3,
            2,
            1,
            4
        },
        {
            14
        },
        {
            15
        }
    }
}
}

```

Table D-6 Log Listings (continued)

17.	<pre> value MultimediaSystemControlMessage ::= response :terminalCapabilitySetAck : {   sequenceNumber 1 } </pre>
18.	<pre> value MultimediaSystemControlMessage ::= request :masterSlaveDetermination : {   terminalType 50   statusDeterminationNumber 7862592 } </pre>
19.	<pre> value MultimediaSystemControlMessage ::= response :masterSlaveDeterminationAck : {   decision slave :NULL } </pre>
20.	<pre> value MultimediaSystemControlMessage ::= response :terminalCapabilitySetAck : {   sequenceNumber 1 } </pre>
21.	<pre> value MultimediaSystemControlMessage ::= response :masterSlaveDeterminationAck : {   decision master :NULL } </pre>
22.	<pre> value MultimediaSystemControlMessage ::= request :openLogicalChannel : {   forwardLogicalChannelNumber 1   forwardLogicalChannelParameters   {     dataType audioData :g711Alaw64k :20     multiplexParameters h2250LogicalChannelParameters :     {       sessionID 1       mediaControlChannel unicastAddress :iPAddress :       {         network 'COA80363'H         tsapIdentifier 18757       }     }   } } </pre>
23.	<pre> value MultimediaSystemControlMessage ::= request :openLogicalChannel : {   forwardLogicalChannelNumber 257   forwardLogicalChannelParameters   {     dataType audioData :g711Alaw64k :20     multiplexParameters h2250LogicalChannelParameters :     {       sessionID 1       mediaGuaranteedDelivery FALSE       mediaControlChannel unicastAddress :iPAddress :       {         network 'COA80209'H         tsapIdentifier 49607       }       mediaControlGuaranteedDelivery FALSE       silenceSuppression TRUE     }   } } </pre>

Table D-6 Log Listings (continued)

24.	<pre> value MultimediaSystemControlMessage ::= response :openLogicalChannelAck : {   forwardLogicalChannelNumber 257   forwardMultiplexAckParameters h2250LogicalChannelAckParameters :   {     sessionID 1     mediaChannel unicastAddress :iPAddress :     {       network 'COA80363'H       tsapIdentifier 18756     }     mediaControlChannel unicastAddress :iPAddress :     {       network 'COA80363'H       tsapIdentifier 18757     }     flowControlToZero FALSE   } } </pre>
25.	<pre> value MultimediaSystemControlMessage ::= response :openLogicalChannelAck : {   forwardLogicalChannelNumber 1   forwardMultiplexAckParameters h2250LogicalChannelAckParameters :   {     sessionID 1     mediaChannel unicastAddress :iPAddress :     {       network 'COA80209'H       tsapIdentifier 49606     }     mediaControlChannel unicastAddress :iPAddress :     {       network 'COA80209'H       tsapIdentifier 49607     }   } } </pre>
26.	<pre> value RasMessage ::= registrationRequest : {   requestSeqNum 28039   protocolIdentifier { 0 0 8 2250 0 2 }   discoveryComplete FALSE   callSignalAddress   {   }   rasAddress   {     ipAddress :     {       ip 'COA80363'H       port 49450     }   }   terminalType   {     mc FALSE     undefinedNode FALSE   }   gatekeeperIdentifier {"zonetwo"}   endpointVendor   {     vendor     {       t35CountryCode 181       t35Extension 0       manufacturerCode 18     }   }   timeToLive 60   keepAlive TRUE   endpointIdentifier {"814EE09C0000001A"}   willSupplyUIEs FALSE } </pre>

Table D-6 Log Listings (continued)

27.	<pre> value RasMessage ::= registrationConfirm : {   requestSeqNum 28039   protocolIdentifier { 0 0 8 2250 0 2 }   callSignalAddress   {   }   gatekeeperIdentifier {"zonetwo"}   endpointIdentifier {"814EE09C0000001A"}   alternateGatekeeper   {   }   timeToLive 60   willRespondToIRR FALSE } </pre>
28.	<pre> value MultimediaSystemControlMessage ::= command :endSessionCommand :disconnect :NULL </pre>
29.	<pre> value MultimediaSystemControlMessage ::= command :endSessionCommand :disconnect :NULL </pre>
30.	<pre> value H323_UserInformation ::= {   h323-uu-pdu   {     h323-message-body releaseComplete :     {       protocolIdentifier { 0 0 8 2250 0 2 }       reason undefinedReason :NULL       callIdentifier       {         guid '0B01EF01BD95D611AD4600A0CC5C89F1'H       }     }   } } </pre>
31.	<pre> value RasMessage ::= disengageRequest : {   requestSeqNum 28040   endpointIdentifier {"814EE09C0000001A"}   conferenceID '0C01EF01BD95D611AD4600A0CC5C89F1'H   callReferenceValue 235   disengageReason normalDrop :NULL   callIdentifier   {     guid '0B01EF01BD95D611AD4600A0CC5C89F1'H   }   answeredCall TRUE } </pre>

Table D-6 Log Listings (continued)

32.	<pre> value RasMessage ::= disengageConfirm : {   requestSeqNum 28040 } </pre>
33.	<pre> value RasMessage ::= registrationRequest : {   requestSeqNum 28041   protocolIdentifier { 0 0 8 2250 0 2 }   discoveryComplete FALSE   callSignalAddress   {   }   rasAddress   {     ipAddress :     {       ip 'COA80363'H       port 49450     }   }   terminalType   {     mc FALSE     undefinedNode FALSE   }   gatekeeperIdentifier {"zonetwo"}   endpointVendor   {     vendor     {       t35CountryCode 181       t35Extension 0       manufacturerCode 18     }   } } </pre>