

Troubleshooting Gatekeeper Registration Issues

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Introduction

This document addresses some of the common issues that are known to result in endpoints that do not register with Cisco gatekeepers (Cisco IOS® gateways/routers). This document also explains how to check if the endpoints or gateways are registered with the gatekeeper, and suggests some **debug** commands to troubleshoot the issue. It is assumed that the reader understands the basic concept of Registration, Admission, and Status (RAS) signaling and the functionality of the Cisco gatekeeper.

For more information about gatekeepers, please refer to Understanding H.323 Gatekeepers.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions.

Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

Problem

When you use a Cisco gatekeeper to route a call between Cisco gateways, the gateways do not register with the gatekeeper. These products are affected:

- Cisco 2600, 3600, 7200 series routers
- Cisco IOS with Multimedia Conference Manager (MCM) or H.323 features

Commands

This section describes some **debug** commands to assist you while you troubleshoot the issue.

show gatekeeper endpoint

Use this gatekeeper command to verify the endpoint's registration status to the gatekeeper.

This example shows the common output of this command if an endpoint is registered.

```
gatekeeper#show gatekeeper endpoint
                GATEKEEPER ENDPOINT REGISTRATION
                =====
CallSignalAddr  Port  RASSignalAddr  Port  Zone Name  Type  Flags
-----
172.16.13.35    1720  172.16.13.35  50890  gk         VOIP-GW
    E164-ID: 2073418
    E164-ID: 5251212
    H323-ID: gw3
Total number of active registrations = 1
```

In Cisco IOS Software Release 12.3(1) the output was modified to include concurrent calls for the endpoints.

This example shows the common output of this command if an endpoint is *not* registered.

```
gatekeeper#show gatekeeper endpoint
                GATEKEEPER ENDPOINT REGISTRATION
                =====
CallSignalAddr  Port  RASSignalAddr  Port  Zone Name  Type  Flags
-----
Total number of active registrations = 0
```

show gateway

Use this gateway command to verify the registration status of the gateway to a gatekeeper.

This example shows the common output of this command if the gateway is registered to a gatekeeper.

```
gw3#show gateway
Gateway gw3/ww is registered to Gatekeeper gk

Alias list (CLI configured)
E164-ID 2073418
E164-ID 5251212
H323-ID gw3
Alias list (last RCF)
E164-ID 2073418
E164-ID 5251212
H323-ID gw3

H323 resource thresholding is Disabled
```

This example shows the common output of this command if the gateway is *not* registered to a gatekeeper.

```
gw3#show gateway
Gateway gw3 is not registered to any gatekeeper
```

```
Alias list (CLI configured)
E164-ID 2073418
E164-ID 5251212
H323-ID gw3/ww
Alias list (last RCF)
```

```
H323 resource thresholding is Disabled
```

debug h225 asn1

This is a gatekeeper and gateway **debug** command. For the purpose of this document, only look for the Registration Reject (RRJ) field, and search for the rejection reason. This example shows the RRJ field output.

This is the output from the gateway.

```
*Mar 8 06:03:53.629: RAS INCOMING PDU ::=
value RasMessage ::= registrationReject :
{
  requestSeqNum 2829
  protocolIdentifier { 0 0 8 2250 0 3 }
  rejectReason securityDenial : NULL
  gatekeeperIdentifier {"gk"}
}
```

This is the output from the gatekeeper.

```
*Mar 1 06:49:32.699: RAS OUTGOING PDU ::=
value RasMessage ::= registrationReject :
{
  requestSeqNum 3055
  protocolIdentifier { 0 0 8 2250 0 3 }
  rejectReason securityDenial : NULL
  gatekeeperIdentifier {"gk"}
}
```

Solutions/Reject Reasons

Verify that the gatekeeper is enabled:

```
gatekeeper
zone local gk cisco.com
no shutdown
```

The gateway is not registered if there are no **debug ras** and **debug h225 asn1** outputs from the gateway.

The **show gatekeeper endpoint** and **show gateway** commands indicate that no gateway is registered. Check the gateway for:

- The **gateway** command is enabled:

```
gw3(config)#gateway
```

- At least one **dial-peer voice <tag> voip** is configured.

RRJ: rejectReason duplicateAlias

This output from the **debug h225 asn1** command shows a registration reject reason of `duplicateAlias`.

```
RAS INCOMING PDU ::=

value RasMessage ::= registrationReject :
{
  requestSeqNum 24
  protocolIdentifier { 0 0 8 2250 0 3 }
  rejectReason duplicateAlias:
  {
  }
  gatekeeperIdentifier {"gk"}
}
```

This is usually the result of the gateway registering a duplicate of an E164-ID or H323-ID: Another gateway has already been registered to the gatekeeper. If it is a duplicated E164-ID, change the destination pattern configured under a POTS dial-peer associated with an FXS port. If it is a duplicated H323-ID, change the gateway's H.323 ID under the H.323 VoIP interface.

RRJ: rejectReason terminalExcluded

```
*Mar 1 09:48:09.553: RAS OUTGOING PDU ::=

value RasMessage ::= gatekeeperReject :
{
  requestSeqNum 3421
  protocolIdentifier { 0 0 8 2250 0 3 }
  rejectReason terminalExcluded : NULL
}
```

This is the result of the subnet of the gateway being disabled in the gatekeeper. Check the gatekeeper configuration.

You will most likely see this configuration. If so, removing the **no zone subnet gk 172.16.13.0/27 enable** command resolves the issue. To remove the command completely, remove **zone local gk cisco.com**.

```
gatekeeper
zone local gk cisco.com
no zone subnet gk 172.16.13.0/27 enable
zone prefix gk 5*
gw-type-prefix 510#* default-technology
no shutdown
```

RRJ: rejectReason securityDenial

```
*Mar 1 09:54:32.372: RAS OUTGOING PDU ::=

value RasMessage ::= registrationReject :
{
  requestSeqNum 3010
  protocolIdentifier { 0 0 8 2250 0 3 }
  rejectReason securityDenial : NULL
  gatekeeperIdentifier {"gk"}
}
```

This RRJ is the result of the security commands being enabled in the gatekeeper, and the gateway could not match the h323-id, E164-id, passwords, or security token the gatekeeper requires. To resolve the issue, check

which security command has been configured in the gatekeeper. For further information on security, refer to the Gateway to Gatekeeper (H.235) and Gatekeeper to Gatekeeper (IZCT) Security Troubleshooting Guide.

If **security h323-id** is enabled, make sure the gatekeeper has been configured as shown here:

```
username gw3 password 0 ww

gatekeeper
zone local gk cisco.com
no zone subnet gk 172.16.13.0/27 enable
zone prefix gk 5*
security h323-id
security password separator /
gw-type-prefix 510#* default-technology
no shutdown
```

Also, make sure the gateway has this configuration:

```
interface Ethernet0/0
ip address 172.16.13.35 255.255.255.224
half-duplex
h323-gateway voip interface
h323-gateway voip id gk ipaddr 172.16.13.14 1718
h323-gateway voip h323-id gw3/ww
```

Note: Make sure the gateway *does not* have this command:

```
gateway
security password 010411 level endpoint
```

If **security E164** is enabled, make sure the gatekeeper is configured as shown here:

```
username 5551212 B- E164 address the gateway tries to
registered to gatekeeper

gatekeeper
zone local gk cisco.com
no zone subnet gk 172.16.13.0/27 enable
zone prefix gk 5*
security E164
gw-type-prefix 510#* default-technology
no shutdown
```

If **security token** is enabled, make sure the gatekeeper is configured as shown here:

```
gatekeeper
zone local gk cisco.com
no zone subnet gk 172.16.13.0/27 enable
zone prefix gk 5*
security token required-for registration
gw-type-prefix 510#* default-technology
no shutdown
```

Also, make sure the gateway has this configuration:

```
gateway
security password 010411 level endpoint
```

Note: Make sure the gatekeeper has been configured properly with the AAA and RADIUS, and that both the gatekeeper and gateway point to the same NTP server.

RRJ: rejectReason invalidAlias

```
*Mar 1 22:03:28.929: RAS OUTGOING PDU ::=
value RasMessage ::= registrationReject :
{
  requestSeqNum 2994
  protocolIdentifier { 0 0 8 2250 0 3 }
  rejectReason invalidAlias : NULL
  gatekeeperIdentifier {"gk-A"}
}
```

The RRJ is the result of a no-zone prefix defined in the gatekeeper. Check the configuration on the gatekeeper and add the zone prefix with the proper E.164 address. You should check the Cisco IOS defects in Cisco bug ID CSCdu78917 (registered customers only) .

Configure the gatekeeper as seen here:

```
!
gatekeeper
zone local gk-A cisco.com
zone prefix gk-A 2000*
zone prefix gk-A 3000*
zone prefix gk-A 4000*
no shutdown
!
```

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Related Information

- **Understanding H.323 Gatekeepers**
- **Troubleshooting and Understanding Cisco Gatekeeper Bandwidth Management**
- **Understanding and Troubleshooting Gatekeeper TTL and Aging out Process**
- **Understanding, Configuring and Troubleshooting Resource Allocation Indication**
- **VoIP with Gatekeeper**
- **Voice Technology Support**
- **Voice and Unified Communications Product Support**
- **Recommended Reading: Troubleshooting Cisco IP Telephony Cisco Press, ISBN 1587050757**

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