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RSNA

Reservationless Single Number Access (RSNA) allows multiple Cisco Unified MeetingPlace Audio Servers to appear as one server to the user community. All users who host (as a profile user) or attend (as a profile user or as a guest) a reservationless meeting can access the meeting by dialing the phone number of the server that is local to that user, regardless of which server is hosting the meeting. Users are then redirected to the server that is hosting the meeting.

If you are setting up RSNA for the first time, see the following sections:

- RSNA Requirements
- About Extended RSNA Prefixes (if you are using extended prefixes)
- Setting Up RSNA for the First Time

- Troubleshooting RSNA

Extended RSNA Prefixes

You can also configure extended RSNA prefixes indicating specific Audio Server/codec support combinations. With extended prefixes, you can control the codec that is used in redirecting calls from one server to another.

If you are adding extended prefixes to an existing RSNA configuration, see the following sections:

- Extended RSNA Prefix Requirements
- About Extended RSNA Prefixes
- Adding Extended Prefixes to an Existing RSNA Configuration
- Troubleshooting RSNA

RSNA N+1 Configurations

Another option is to configure your system for an RSNA N+1 configuration. For an RSNA N+1 configuration, you need at least one "extra" Audio Server and two "extra" Web Servers (one for internal and one for external).

If you are setting up RSNA N+1 for the first time, see the following sections:

- RSNA N+1 Requirements
- About the RSNA N+1 Configuration
- Troubleshooting RSNA

RSNA Requirements

- RSNA requires that all voice communication with the Cisco Unified MeetingPlace server uses VoIP and SIP. Any PSTN or H.323 end points must go through a SIP integration to communicate with the system. This implementation depends on the use of the SIP "REFER method" call transfer mechanism, as specified in RFC 3515. All participating SIP end points, including a Cisco Unified MeetingPlace H.323/SIP IP server, any SIP integrations that communicate with Cisco Unified MeetingPlace and any phones or other terminals that communicate directly with the system by using SIP must support the SIP REFER method.

  A SIP phone that does not support the REFER method does not transfer correctly and cannot attend meetings that require a transfer. In this situation, users are asked to dial the phone number of the hosting server, as if they entered an unrecognized meeting ID.

- System administrators must ensure the following:
  - All participating Cisco Unified MeetingPlace servers have synchronized user databases
  - All user profiles for active users are present on all systems
- Use Cisco Unified MeetingPlace Directory Services to synchronize user databases across multiple Cisco Unified MeetingPlace systems. The following fields in each user profile on all servers must be set identically:
  - User ID
  - Scheduling Home Server
    This configuration assumes that profile numbers are assigned across the system (for example, profile ID 1234 on servers A and B both refer to the same person). This configuration also assumes that either server can authenticate the user for both servers.
  - Passwords must be synchronized. If the password is not the same across the system, the user is provisionally authenticated (and must reenter the password for access as a profile user after exiting the meeting). Also, if users want to rerecord their name on a remote server, they need to know their password on that server.
- If you are using extended RSNA prefixes, all requirements for extended prefixes. See the following Extended RSNA Prefix Requirements section.
- The recommended version of IOS is 12.4.15T5, although we also support version 12.4.11T3. For CUBE, the recommended version of IOS is 12.4.20T.

RSNA Restriction

Meeting recordings are stored only on the Web Server that is associated with the Schedule home server for the meeting owner. To access meeting recordings, the users must know the URL of the Web Server that you assigned to the meeting owner.

Extended RSNA Prefix Requirements

- Voice gateways involved in the RSNA transfer must support transcoding and be running IOS 12.4.9T or a later release.
- All requirements for the RSNA feature. See RSNA Requirements.

RSNA N+1 Requirements

- You need at least one "extra" Audio Server and two "extra" Web Servers (one for internal and one for external).

- All requirements for the RSNA feature. See RSNA Requirements.

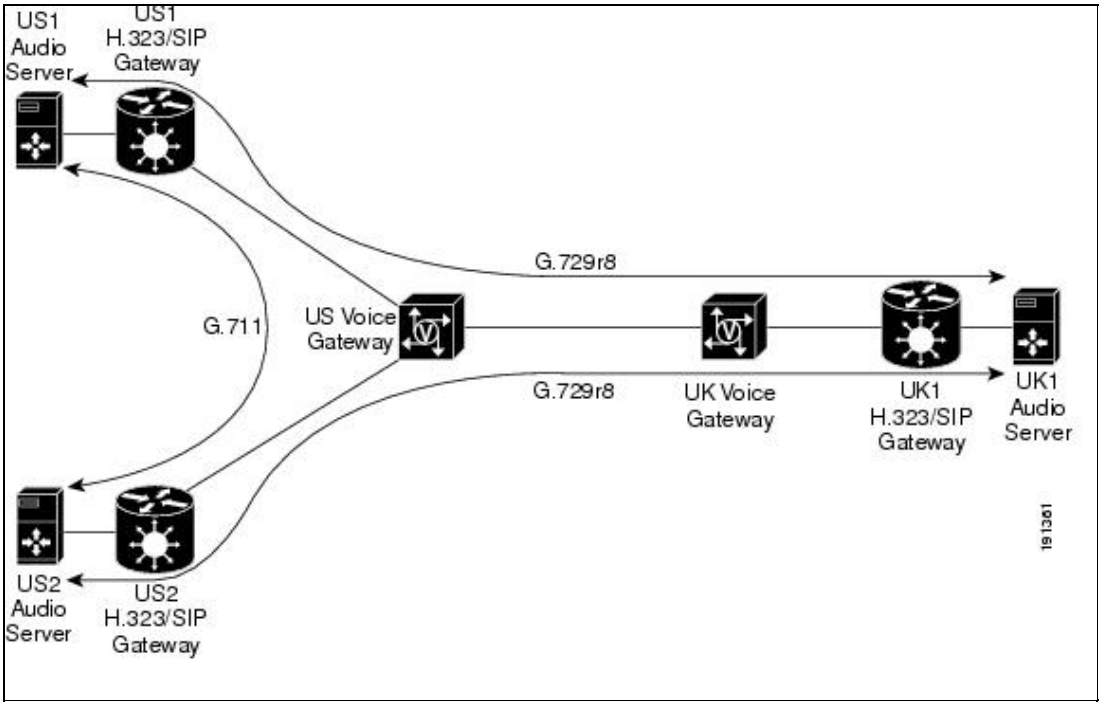
About Extended RSNA Prefixes

In some circumstances, you may want to be able to control the type of codec that is used when performing RSNA transfers between particular servers. Extended RSNA prefixes allow you to specify the codec that is used during the call transfer by using a codec configuration prefix value in the dial peers on each voice gateway. In MeetingTime, you configure a server record on each Cisco Unified MeetingPlace Audio Server for every other server that will participate in RSNA transfers. In the server record, you specify a value for the Extended RSNA Codec, and MeetingTime returns an extended prefix value. You use the extended prefix value as the destination pattern when configuring the dial peers for transferring calls to that server. In each dial peer, you also specify which codec to use on the transferred calls.

Extended RSNA Prefix Configuration Example

The example in Figure 2-3 shows a topology where there are two Cisco Unified MeetingPlace Audio Servers in the United States and one in the United Kingdom. In this scenario, calls that are transferred between the U.S. servers (US1 and US2) should use the G.711 codec, and calls that are transferred between the U.S. servers and the UK server (or vice versa) should use the G.729r8 codec.

Figure: RSNA Transfer Paths Utilizing Different Codecs



On the Audio Servers in this example, configuring an Extended RSNA Codec in MeetingTime for every other server results in the extended prefix values shown in Table: Extended Prefix Values for Other Servers on US1.

Table: Extended Prefix Values for Other Servers on US1

Server	Extended Prefix
US1	0101
US2	0201
UK1	0301

Note that the actual codec used when transferring calls depends on the dial-peer configuration on the gateway, not on the value of the Extended RSNA Codec field. Any codec (other than None) can be chosen for the Extended RSNA Codec field in order to generate the extended prefix; however, the codec you choose for a given server should be consistent across all of the Audio Servers in order to generate the same extended prefix for that server (for example, use G.711uLaw when configuring the Other Servers record for US1 on both US2 and UK1).

Given these prefix values, the U.S. voice gateway would be configured with dial peers such as the following to match the extended prefixes:

```
dial-peer voice 210 voip

      description rsna_refer_to_us1

      destination-pattern 0101

      session protocol sipv2

      session target ipv4:10.10.10.1

      dtmf-relay rtp-nte

      codec g711ulaw

      no vad

!

dial-peer voice 220 voip

      description rsna_refer_to_us2

      destination-pattern 0201

      session protocol sipv2

      session target ipv4:10.10.10.2

      dtmf-relay rtp-nte

      codec g711ulaw
```

```
      no vad
!
dial-peer voice 230 voip
      description rsna_refer_to_UK1
      destination-pattern 0301
      session protocol sipv2
      session target ipv4:10.10.10.3
      dtmf-relay rtp-nte
      codec g729r8
      no vad
!
```

The outgoing dial peers on the UK voice gateway will look something like this:

```
dial-peer voice 210 voip
      description rsna_refer_to_us1
      destination-pattern 0101
      session protocol sipv2
      session target ipv4:10.10.10.1
      dtmf-relay rtp-nte
      codec g729r8
      no vad
!
dial-peer voice 220 voip
      description rsna_refer_to_us2
      destination-pattern 0201
      session protocol sipv2
      session target ipv4:10.10.10.2
```

```
    dtmf-relay rtp-nte

    codec g729r8

    no vad

!
```

Setting Up RSNA for the First Time

Note: If the system is already configured to use RSNA and you are adding extended prefixes, see the Adding Extended Prefixes to an Existing RSNA Configuration instead.

Setting up RSNA involves configuring settings on the Cisco Unified MeetingPlace Audio Servers to enable RSNA and adding dial peers to the Cisco voice gateways in your network to handle RSNA transfers.

This section contains the following information:

- Configuring the Audio Servers for RSNA Transfers
- Configuring a Cisco Voice Gateway for RSNA Transfers

You can also configure a complementary "reservationless WebConnect" service for Cisco Unified MeetingPlace Web Conferencing. However, because WebConnect and RSNA work independently, you must ensure that each is configured correctly to be synchronized.

Configuring the Audio Servers for RSNA Transfers

Do the three procedures in this section in the order presented to enable single number access on the Cisco Unified MeetingPlace Audio Servers:

Note: For Cisco Unified MeetingPlace 8112 Only: Setting the RSNA Enabled attribute to No on a Cisco Unified MeetingPlace 8112 applies only to the server that is transferring a call (not receiving a call).

In the first procedure, you create an Other MeetingPlace Servers record for each remote server that will participate in RSNA.

Caution! To avoid a loopback condition, do not create an Other MeetingPlace Servers record with an ID Number that matches the Scheduling Home Server setting.

To Create Other Cisco Unified MeetingPlace Servers Records

You must create an Other MeetingPlace Servers record for each remote server that will participate in RSNA.

1. In the MeetingTime Configure tab, select the **Other MeetingPlace Servers** view.
2. Create a new record with the following values:

Attribute	Do This
Name	Enter the name of the remote server.
ID number	Enter a number between 101 and 32767. This number must match the value of the Scheduling Home Server attribute set in the profile for users for that server. **Note:** Setting this field to 0 (zero) prevents this record from being used. This field must contain a value greater than 100. For example, 102 and 121 are valid values; however, 007 is invalid.
Phone number	Access phone number for the remote server (used to play a prompt if a transfer fails).
Ethernet address	Enter the Ethernet address of the remote server (the same address used to generate license keys on that server).
VoIP gateway IP address 1	Enter the IP address of the remote server VoIP gateway.
(Optional) VoIP gateway IP address 2	Enter the IP address of a second remote server VoIP gateway including N+1, if there is one. **Note:** When configuring one VoIP gateway, enter the IP address of the gateway for VoIP Gateway IP Address 1, and leave VoIP Gateway IP Address 2 blank. When configuring two VoIP gateways, enter different IP addresses for VoIP Gateway IP Address 1 and VoIP Gateway IP Address 2. Do not enter a value for VoIP Gateway IP Address 2 if VoIP Gateway IP Address 1 is blank or set to 0.0.0.0. For an RSNA N+1 configuration, you can use VoIP Gateway IP Address 2.
Will accept SNA transfers?	Choose **Yes** .
Extended RSNA Codec	Choose a codec in order to generate an Extended RSNA Prefix value for the remote server. If you do not want to use the Extended RSNA Prefix feature, choose **None** . After you choose the codec and save your changes, MeetingTime displays a value in the Extended Prefix field. You will use this value when configuring dial peers for the RSNA transfer on the voice gateway. **Note:** The actual codec used when transferring calls depends on the dial-peer configuration on the gateway, not on the value of the Extended RSNA Codec field. Any codec (other than None) can be chosen for the Extended RSNA Codec field in order to generate the extended prefix; however, the codec you choose for this server record should be consistent with the value you choose for the remote server in MeetingTime on other Audio Server in order to generate the same extended prefix on each Audio Server.

3. Repeat Step 1 and Step 2 for each participating server to create Other MeetingPlace Servers records for all remote servers.

4. Click **Save Changes** .

Make sure that all ID Number values and Scheduling Home Server values are identical across participating servers.

In the following procedure, you turn on the RSNA transfer mechanism by enabling the system for RSNA.

To Enable the System for RSNA

You must enable the system for RSNA, to turn on the RSNA transfer mechanism.

1. In the MeetingTime Configure tab, select the **Usage Parameters** view.
2. Scroll to the **SNA Settings** attributes. For the RSNA Enabled attribute, choose **Yes** .
3. Click **Save Changes** .

Note: If you are configuring the system for an RSNA N+1 configuration, you need to enable the system for the RSNA N+1 configuration in this step, too.

In the following procedure, you enable remote users to use the RSNA feature by setting attributes in the MeetingTime Configure tab. Each user is assigned to a specific server identified by the Scheduling Home Server value in the user profile. This value is used to look up an Other MeetingPlace Servers record (which you created in the To Create Other Cisco Unified MeetingPlace Servers Records).

To Configure Users and Groups for RSNA

1. In the MeetingTime Configure tab, select the **User Profile** or **User Group** view.
2. For the Scheduling Home Server attribute (in the Identification attributes category), enter a number between 101 and 32767 that matches the ID Number value set in Step 2 in the To Create Other Cisco Unified MeetingPlace Servers Records.
   This value must be the same as the ID Number value and must not be 0 (zero). The range should start at 101, and not 1. For example, 1 to 32767 should instead be 101 to 32767.
   Caution! Confirm that the records on the home server are configured correctly. If they are incorrect, the call will not be transferred and the reservationless meeting will be held on the local server of the user.
3. Confirm that the Use Reservationless attribute (in the Restrictions attributes category) is set to either **Yes** or **Group Dflt(Yes)** .
4. Click **Save Changes** .
5. Confirm that the following attributes are set correctly:

.

Attribute	Value
RSNA Enabled (in the Configure tab, Usage Parameters view)	Yes For more information, see the To Enable the

	System for RSNA.
Will Accept SNA Transfers (in the Configure tab, Other MeetingPlace Servers view)	Yes For more information, see the To Create Other Cisco Unified MeetingPlace Servers Records.

Configuring a Cisco Voice Gateway for RSNA Transfers

In this section, you add dial peers to the Cisco voice gateways in your network to handle RSNA transfers.

To Configure a Cisco Voice Gateway for RSNA Transfers

1. Telnet into the router, and enter the requested login information.
2. Enter **show running-config** .
   The current configuration of the Cisco voice gateway displays.
3. To ensure that the router sends calls from any endpoint to a particular Cisco Unified MeetingPlace H.323/SIP Gateway, enter the following configuration information:

.

Enter	Notes
dial-peer voice [*number*] voip	Required. [*number*] is a numeric tag that differs depending on how you have set up your voice network.
description [*text*]	Optional. [*text*] is a description of this configuration; for example, *Send call to US1 IPGW.*
destination-pattern [*0000*]	[*0000*] is the destination pattern (dialed number) in your dial plan.
session protocol sipv2	Required.
session target ipv4:[*000.00.0000*]	[*000.00.0000*] is the IP address of the Cisco Unified MeetingPlace H.323/SIP Gateway server to which calls will be sent.
dtmf-relay rtp-nte	Required. Allows DTMF relay using NTE RTP packets. DTMF tones are encoded in the NTE format and transported in the same RTP channel as the voice.
req-qos [*type*]	Optional. [*type*] is the type of requested Quality of Service (QOS); for example, *controlled-load.*
codec [codec]	[*codec*] is the voice-compression (codec) type; for example, *g711ulaw.*
no vad	Optional but recommended. Disables voice-activity detection.

4. To set up a dial peer to handle the SIP REFER request, enter the following configuration information:

Enter	Notes
dial-peer voice [*number*] voip	Required. [*number*] is a numeric tag that differs depending on how you have set up your voice network.

description [*text*]	Optional. [*text*] is a description of this configuration; for example, *SIP REFER to US1* .
application session	Required for IOS releases prior to 12.3.
destination-pattern [*0000*]	If you are using the Extended RSNA Prefix feature, [*0000*] must match the Extended Prefix string displayed in MeetingTime on the originating Cisco Unified MeetingPlace Audio Server, as shown in the "Other MeetingPlace Servers" configuration for the server being transferred to. If you are not using the Extended RSNA Prefix feature, [*0000*] must match the RSNA Prefix configured on the Cisco Unified MeetingPlace H.323/SIP Gateway server.
session protocol sipv2	Required.
session target ipv4:[*000.00.0000*]	*000.00.0000* is the IP address of the Cisco Unified MeetingPlace H.323/SIP Gateway server to transfer calls to.
dtmf-relay [rtp-nte]	Required. Allows DTMF relay using NTE RTP packets. DTMF tones are encoded in the NTE format and transported in the same RTP channel as the voice.
req-qos [*type*]	Optional. [*type*] is the type of requested Quality of Service (QOS); for example, *controlled-load* .
codec [*codec*]	[*codec*] is the voice-compression (codec) type; for example, *g711ulaw* .
no vad	Optional but recommended. Disables voice-activity detection.

5. Enter **exit** , then enter **exit** again.

6. Enter **write memory** to apply the configuration settings.

Adding Extended Prefixes to an Existing RSNA Configuration

Note: The instructions in this section assume the system is already set up to use RSNA. If it is not, see the Setting Up RSNA for the First Time instead. The instructions there include options for using extended prefixes.

Do the two procedures in this section in the order listed to use extended prefixes.

In the following procedure, on each Audio Server that participates in RSNA transfers, you configure the Extended RSNA Codec in MeetingTime for all other participating servers.

To Configure the Extended RSNA Codec

1. In the MeetingTime Configure tab, select **Other MeetingPlace Servers** .
2. Click **Query** .
3. Click the forward arrow to select a server that will participate in RSNA transfers.
4. For the Extended RSNA Codec field, select a codec to be used when calls are transferred to this server.
5. Click **Save Changes** .

6. Note the value returned in the Extended Prefix field. You will use this value when configuring a dial peer on the voice gateway.
7. Repeat Step 3 through Step 6 for all remaining Audio Servers that participate in RSNA transfers.
8. Repeat Step 1 through Step 7 on each remaining Audio Server that participates in RSNA transfers.

In the following procedure, for each extended prefix generated in the preceding procedure, you configure the Cisco voice gateways with dial peers to transfer calls using the proper codec.

To Configure the Voice Gateway with a Dial Peer for the Extended RSNA Prefix

1. Telnet into the router, and enter the requested login information.
2. Enter **show running-config** .
   The current configuration of the Cisco voice gateway displays.
3. To set up a dial peer to handle the SIP REFER request, enter the following configuration information:

.

Enter	Notes
dial-peer voice [*number*] voip	Required. [*number*] is a numeric tag that differs depending on how you have set up your voice network.
description [*text*]	Optional. [*text*] is a description of this configuration; for example, *SIP REFER to US1*.
destination-pattern [*0000*]	[*0000*] must match the extended prefix string displayed in MeetingTime in Step 6 of the To Configure the Extended RSNA Codec.
session protocol sipv2	Required.
session target ipv4:[*000.00.0000*]	*000.00.0000* is the IP address of the Cisco Unified MeetingPlace H.323/SIP Gateway server to transfer calls to.
dtmf-relay [rtp-nte]	Required. Allows DTMF relay using NTE RTP packets. DTMF tones are encoded in the NTE format and transported in the same RTP channel as the voice.
req-qos [*type*]	Optional. [*type*] is the type of requested Quality of Service (QOS); for example, *controlled-load* .
codec [*codec*]	[*codec*] is the voice-compression (codec) type; for example, *g711ulaw* .
no vad	Optional but recommended. Disables voice activity detection.

4. Repeat Step 3 for each unique extended prefix string.

5. Enter **exit** , then enter **exit** again.

6. Enter **write memory** to apply the configuration settings.

About the RSNA Reserved Meeting Server

The RSNA Reserved Meeting Server feature allows a single Audio Server to host reserved meetings within an RSNA-based network. Typically, all meeting reservations are on the one designated Reserved Meeting Server. When users attend meetings by accessing their local server, if their local server does not recognize

the meeting ID, it transfers the user to the Reserved Meeting Server.

The local server attempts to transfer calls to the Reserved Meeting Server if all of the following conditions are true:

- The Reserved Meeting Server feature has been configured on the local server. For more information, see the ?Configuring the RSNA Reserved Meeting Server Feature? section below.
- The meeting ID that the user entered does not match the meeting ID of any meetings scheduled around that time on the local server.
- The meeting ID that the user entered does not match any user profile, active or not.
- The user confirms the meeting ID.

In addition, consider the following behavior of the RSNA Reserved Meeting Server feature:

- This feature does not prevent meetings from being scheduled locally and will not warn or transfer a user who attempts to schedule a meeting locally.
- If a meeting is scheduled on a server other than the Reserved Meeting Server, this feature will not facilitate attendance of that meeting.
- A locally scheduled meeting always takes precedence over a remote one. This rule applies even if a local meeting recently ended and the user hears that meeting is over.
- If the meeting does not exist on the remote system, the system reprompts the user for a meeting ID after the transfer.
- Users choose which server to schedule the meeting on from the Server drop-down box on the Scheduling page. To restrict users from choosing a server other than the Reserved Meeting Server, you may need to disable the Server drop-down box from the scheduling page. This restriction does not apply if the user dials into a local server and uses the TUI to schedule the meeting. In that case the meeting will be scheduled on a local server.

Configuring the RSNA Reserved Meeting Server Feature

To Configure the RSNA Reserved Meeting Server Feature on the Audio Servers

Follow this procedure for each Audio Server in the network, except for the one that is designated as the Reserved Meeting Server. For information about working with server records, see To Create Other Cisco Unified MeetingPlace Servers Records.

1. Create a remote server record with the ID number 777777. This identifies the Reserved Meeting Server. Note that in a user profile, you cannot select a Scheduling Home Server ID larger than 32767, so a user cannot be associated with the Reserved Meeting Server.
2. Set the MAC (Ethernet) addresses for both the Reserved Meeting Server and the RSNA server. Cisco Unified MeetingTime will only allow you to enter one unique, case-sensitive MAC address per server. Because both the Reserved Meeting Server and the RSNA server share the same MAC address, you will need to create one record with the MAC address in all lower case and another record with the MAC address in all upper case.
3. Confirm that the RSNA Enabled attribute (in the Configure tab, Usage Parameters view) is set to **Yes**. For more information, see To Enable the System for RSNA.
4. Confirm that the Will Accept SNA Transfers attribute (in the Configure tab, Other MeetingPlace Servers view) is set to **Yes**.

About the RSNA N+1 Configuration

For the RSNA N+1 configuration, you need at least one Audio Server and two Web Servers, including internal and external servers inside the N+1 configuration.

Setting up an RSNA N+1 Configuration for the First Time

1. See Configuring the Audio Servers for RSNA Transfers. Follow the steps in that section, with this change:
    - In the "Enable the System for RSNA" section, enable the system for the RSNA N+1 configuration, too.
2. Add an entry to the rollover map for the RSNA N+1 configuration. The RSNA N+1 configuration should be the lowest priority. See To Configure a Rollover Map for information about configuring rollover maps.

Troubleshooting RSNA

This section contains the following information:

- Resolving Recorded User Name Problems
- Viewing Alarm Codes for RSNA

Resolving Recorded User Name Problems

A user may have a different recorded name on each server. The first time that logged-in users attend a meeting hosted on each remote server, they are asked to record their name.

If users do not like their user name on some server, have them note the meeting with the undesirable recording, and tell their system administrator. The system administrator should then find that meeting, determine which server is the problem, and give users the phone number to call to access that server. Users can then enter their profile on that server and rerecord the user name.

Viewing Alarm Codes for RSNA

Table: RSNA Alarm Codes describes minor alarms that may be generated by the RSNA feature. These descriptions may help system administrators to troubleshoot problems.

Table: RSNA Alarm Codes

Alarm	Description
0x30130 (196912) "RSNA transfer loop? UserID=%d MtgOwner=%d"	(Minor alarm) RSNA transfer loop. Indicates an inter-server configuration conflict or user database synchronization problem.
0x30134 (196916) "RSNA userunknown, user=%08x%08x%08x%08x"	(Minor alarm) User identified in an RSNA transfer is unknown. Indicates a user database inter-server synchronization problem.
0x30137 (196919) "RSNA: Password mismatch, user=%08x%08x%08x%08x"	(Minor alarm) Password provided in the transfer information block does not match the local user's password. Indicates an inter-server database synchronization problem.
0x30138 (196920) "RSNA: Info block verification failed, ex=%#x"	(Minor alarm) Corrupted information block received from the transferring server. Indicates the information was corrupted in transmission, a software version mismatch, clock skew, or an attempt at forgery. Look up the secondary exception code (ex=) for more specifics.