Avaya Solution & Interoperability Test Lab

Application Notes for Amtelco RED ALERT with Avaya Communication Manager using ISDN PRI – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Amtelco's RED ALERT emergency notification solution to successfully interoperate with Avaya Communication Manager using ISDN PRI. Information in these Application Notes has been obtained through compliance testing and additional technical discussions. Testing was conducted via the Developer*Connection* Program at the Avaya Solution and Interoperability Test Lab.

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1. Introduction

Amtelco's RED ALERT application is an emergency notification solution. RED ALERT utilizes one of several methods including preprogrammed automated call dialing to quickly contact the appropriate personnel in emergency situations such as network service outage, an area-wide natural disaster, or other trigger criteria. Contacted personnel can confirm to the automated system that they have been notified and are en route to their response stations.

RED ALERT interfaces with Avaya Communication Manager via an ISDN PRI trunk. The compliance testing focused on the ability of RED ALERT to properly initiate and teardown calls via the ISDN PRI trunk. Calls were initiated from RED ALERT to Avaya Communication Manager. Avaya Communication Manager was programmed to tandem calls through to actual PSTN or simulated PSTN endpoints. Tests were conducted to verify the ability of RED ALERT to classify outcomes such as live answer, busy, ring with no answer, answering machine answer, etc.

RED ALERT utilizes an XDS Technologies H.100 series T1/PRI card that is physically connected to the DS1 Interface circuit pack in Avaya Communication Manager. Refer to **Figure 1**.

Product Overview

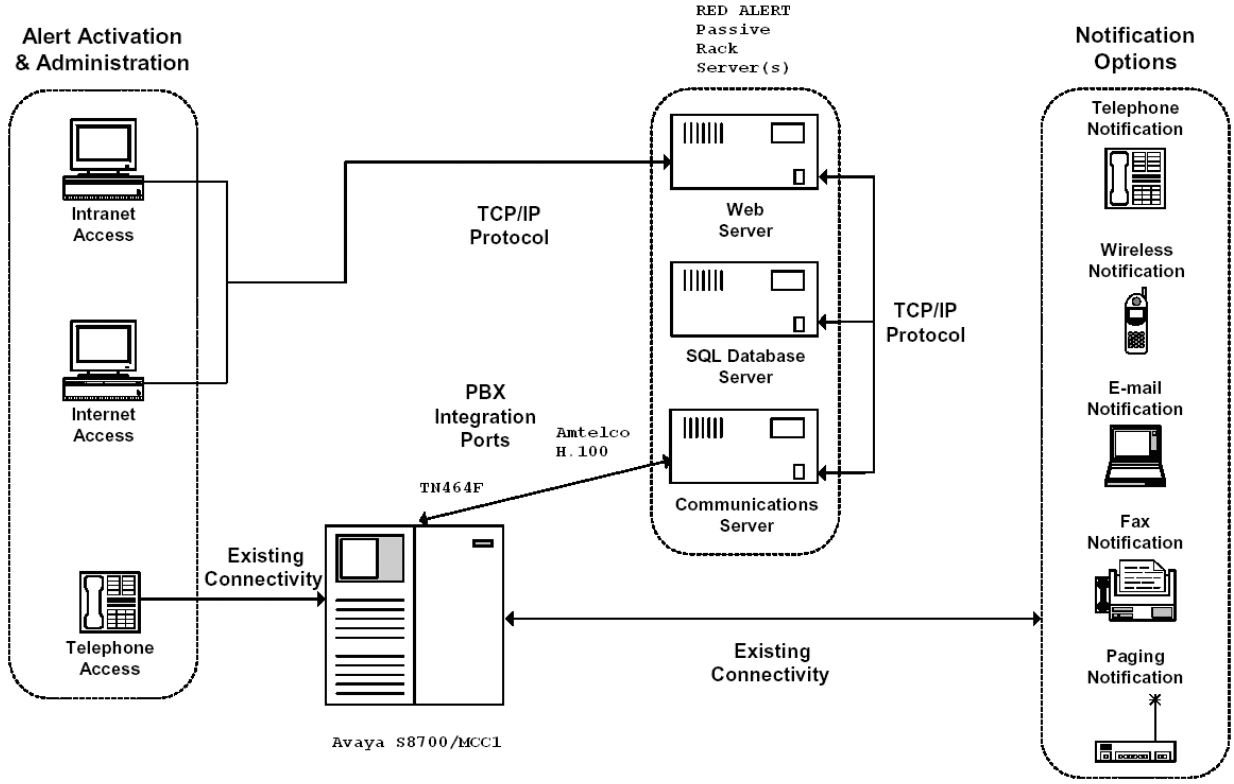

Figure 1: Avaya Developer*Connection* Compliance Test Configuration

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2. Equipment and Software Validated

The following equipment and software were used in the test configuration:

Equipment	Version Information
Avaya S8700 Media Servers	Avaya Communication Manager 3.1.2, load 632.1 w/update 11989
Avaya MCC1 Media Gateway	N/A
Avaya TN464F DS1 Interface	Vintage 10
Amtelco REDALERT with Microsoft Windows Server 2003 R2 Standard Edition, Microsoft SQL Server 2005, ScanSoft Telecom RealSpeak™ / Host V4.0 SDK V4.0.8	1.0.37
Amtelco Passive Rack Server 5U	232A319
Amtelco H.100 MC3/Conference 256	257A002 Firmware 021b
Amtelco H.100 8 Port T1 Interface	257A052 Firmware 005
Amtelco PCI Voice Processing Board 32-port	8309042 Version 1

3. Configure Avaya Communication Manager

The procedures for configuring the ISDN PRI trunk on Avaya Communication Manager include the following areas:

- Verify Avaya Communication Manager License
- Administer DS1 Circuit Pack
- Administer ISDN Trunk Group
- Administer ISDN Signaling Group
- Administer ISDN Trunk Group Members

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3.1. Verify Avaya Communication Manager License

Log into the System Access Terminal (SAT) to verify that the Avaya Communication Manager license has proper permissions for features illustrated in these Application Notes. Use the "display system-parameters customer-options" command to verify that the **ISDN-PRI** option is set to "y" on **Page 4**, as shown below. A system license file controls the settings on the customer-options form.

```
display system-parameters customer-options                      Page   4 of  11
                              OPTIONAL FEATURES

   Emergency Access to Attendant? y                               IP Stations? y
            Enable 'dadmin' Login? y                Internet Protocol (IP) PNC? n
            Enhanced Conferencing? y                            ISDN Feature Plus? y
                     Enhanced EC500? y             ISDN Network Call Redirection? n
    Enterprise Survivable Server? n                            ISDN-BRI Trunks? n
       Enterprise Wide Licensing? n                                  ISDN-PRI? y
                 ESS Administration? n                Local Survivable Processor? n
           Extended Cvg/Fwd Admin? y                       Malicious Call Trace? y
     External Device Alarm Admin? n                    Media Encryption Over IP? n
  Five Port Networks Max Per MCC? n     Mode Code for Centralized Voice Mail? n
                  Flexible Billing? n
   Forced Entry of Account Codes? y                   Multifrequency Signaling? y
      Global Call Classification? n Multimedia Appl. Server Interface (MASI)? n
              Hospitality (Basic)? y          Multimedia Call Handling (Basic)? y
 Hospitality (G3V3 Enhancements)? y       Multimedia Call Handling (Enhanced)? y
                       IP Trunks? y

           IP Attendant Consoles? n
        (NOTE: You must logoff & login to effect the permission changes.)
```


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3.2. Administer DS1 Circuit Pack

Administer a DS1 circuit pack to be used for connectivity to RED ALERT. Use the "add ds1 1b17" command. Note that the actual slot number may vary. In this case "1b17" is the slot number. Enter the following values for the specified fields, and retain the default values for all remaining fields. Submit these changes.

- **Name:** A desirable name. For example, "AmtelcoRedAlert".
- **Line Coding:** "b8zs"
- **Framing Mode:** "esf"
- **Signaling Mode:** "isdn-pri"
- **Connect:** "pbx"
- **Interface:** "network"
- **Protocol Version:** "b"

```
add ds1 1b17                                                Page   1 of   2
                              DS1 CIRCUIT PACK

            Location: 01B17                          Name: AmtelcoRedAlert
            Bit Rate: 1.544                   Line Coding: b8zs
   Line Compensation: 1                       Framing Mode: esf
      Signaling Mode: isdn-pri
             Connect: pbx                       Interface: network
   TN-C7 Long Timers? n                   Country Protocol: 1
Interworking Message: PROGress            Protocol Version: b
Interface Companding: mulaw                          CRC? n
           Idle Code: 11111111
                               DCP/Analog Bearer Capability: 3.1kHz

                                          T303 Timer(sec): 4


      Slip Detection? n                Near-end CSU Type: other

                                  Block Progress Indicator? n
```


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3.3. Administer ISDN Trunk Group

Administer an ISDN PRI trunk group. Use the "add trunk-group n" command, where "n" is an available trunk group number. Enter the following values for the specified fields, and retain the default values for all remaining fields. Submit these changes.

- **Group Type:** "isdn"
- **Group Name:** A descriptive name. For example, "AmtelcoRedAlert".
- **TAC:** An available trunk access code.
- **Service Type:** "tie"

```
add trunk-group 200                                          Page   1 of  21
                              TRUNK GROUP

Group Number: 200                 Group Type: isdn          CDR Reports: y
  Group Name: AmtelcoRedAlert             COR: 1        TN: 1        TAC: 1200
   Direction: two-way        Outgoing Display? n         Carrier Medium: PRI/BRI
 Dial Access? n                Busy Threshold: 255       Night Service:
Queue Length: 0
Service Type: tie                   Auth Code? n            TestCall ITC: rest
                         Far End Test Line No:
TestCall BCC: 4
```

3.4. Administer ISDN Signaling Group

Administer an ISDN signaling group for the DS1 circuit pack. Use the "add signaling-group n" command, where "n" is an available signaling group number. For the **Primary D-Channel** field, enter the slot number for the DS1 circuit pack as administered in **Section 3.2** and port "24".

Maintain the default values for the remaining fields, and submit these changes.

```
add signaling-group 200                                      Page   1 of   5
                              SIGNALING GROUP

 Group Number: 200            Group Type: isdn-pri
                     Associated Signaling? y          Max number of NCA TSC: 0
                        Primary D-Channel: 01B1724     Max number of CA TSC: 0
                                                    Trunk Group for NCA TSC:
       Trunk Group for Channel Selection:
          Supplementary Service Protocol: a
```


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3.5. Administer ISDN Trunk Group Members

Use the "change trunk-group n" command, where "n" is the trunk group number that was administered in **Section 3.3**. Navigate to the **GROUP MEMBER ASSIGNMENTS** page of the **TRUNK GROUP** screen, and enter the ports of the DS1 circuit pack into the corresponding **Port** fields. The corresponding **Code** and **Sfx** fields will be populated automatically.

Repeat this procedure for the desired number of trunk group members. The number of members assigned should match the desired number of maximum simultaneous outgoing PRI calls. For the compliance test, all twenty three trunk group members were added to enable twenty three simultaneous outgoing PRI calls. Submit these changes.

```
change trunk-group 200                                        Page   5 of  21
                                TRUNK GROUP
                                     Administered Members (min/max):   1/23
GROUP MEMBER ASSIGNMENTS                 Total Administered Members:  23

       Port    Code Sfx Name        Night           Sig Grp
  1: 01B1701  TN464  F                               200
  2: 01B1702  TN464  F                               200
  3: 01B1703  TN464  F                               200
  4: 01B1704  TN464  F                               200
  5: 01B1705  TN464  F                               200
  6: 01B1706  TN464  F                               200
  7: 01B1707  TN464  F                               200
  8: 01B1708  TN464  F                               200
  9: 01B1709  TN464  F                               200
 10: 01B1710  TN464  F                               200
 11: 01B1711  TN464  F                               200
 12: 01B1712  TN464  F                               200
 13: 01B1713  TN464  F                               200
 14: 01B1714  TN464  F                               200
 15: 01B1715  TN464  F                               200

change trunk-group 200                                        Page   6 of  21
                                TRUNK GROUP
                                     Administered Members (min/max):   1/23
GROUP MEMBER ASSIGNMENTS                 Total Administered Members:  23

       Port    Code Sfx Name        Night           Sig Grp
 16: 01B1716  TN464  F                               200
 17: 01B1717  TN464  F                               200
 18: 01B1718  TN464  F                               200
 19: 01B1719  TN464  F                               200
 20: 01B1720  TN464  F                               200
 21: 01B1721  TN464  F                               200
 22: 01B1722  TN464  F                               200
 23: 01B1723  TN464  F                               200
 24:
 25:
 26:
 27:
 28:
 29:
 30:
```


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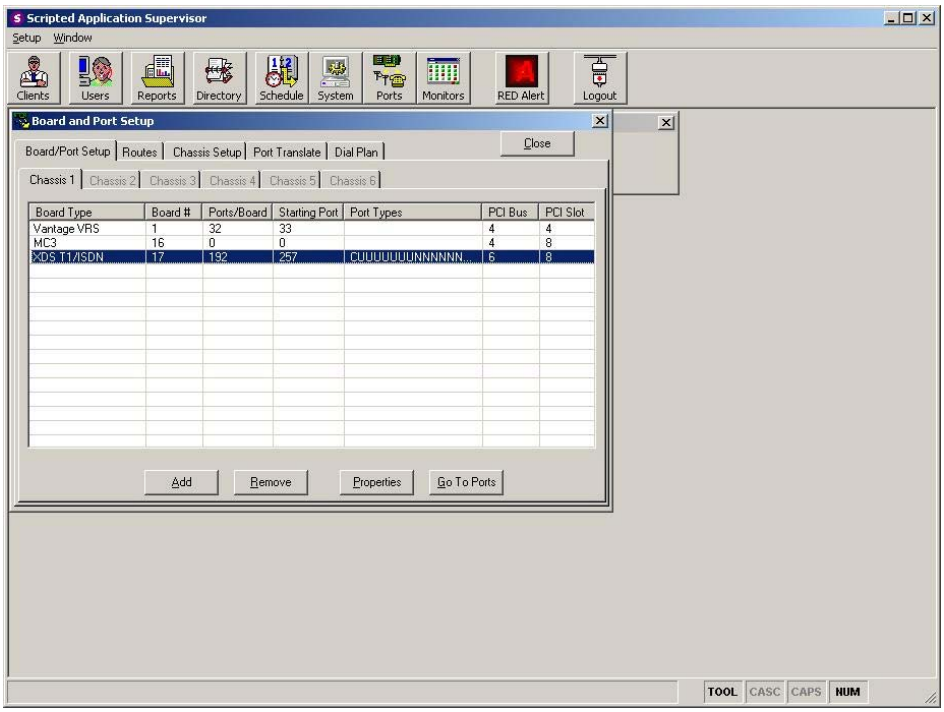
4. Configure RED ALERT T1 Board and Protocol

From the PC running the Amtelco RED ALERT user interface, navigate to **Start > Programs > Amtelco RED ALERT > Scripted Application Supervisor** to open the Scripted Application Supervisor window. Click on **Ports** and then click on **Board/Port Setup** and verify that an XDS T1/ISDN board is listed.[1]



[1] Actual screens may vary from those presented in this document.

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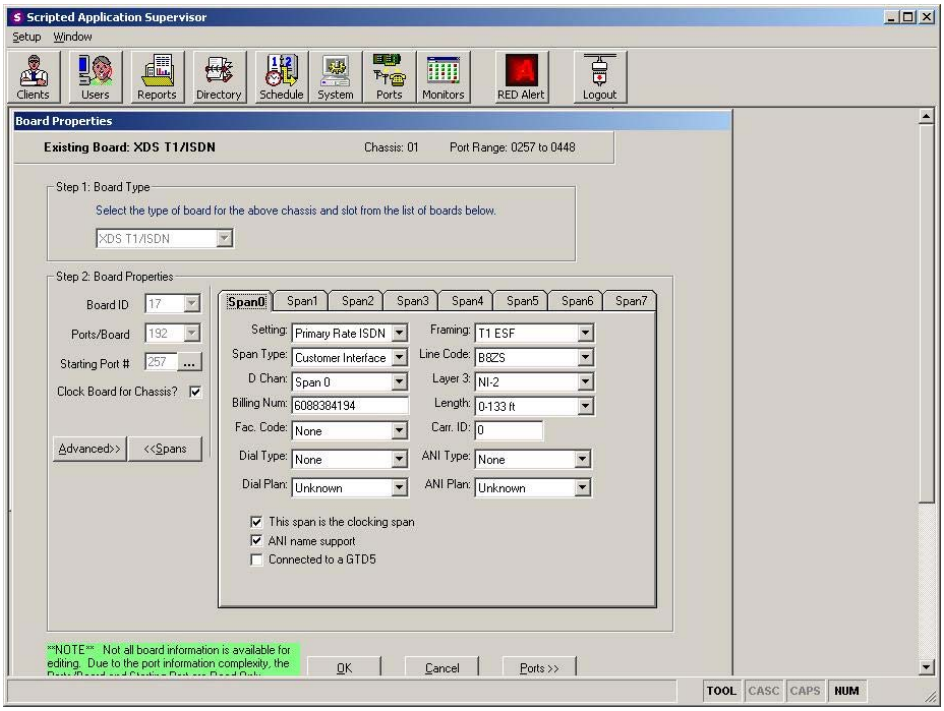
Click on **Properties** and verify that the properties match those shown below. Note that the **Framing** and **Line Coding** fields should match those settings used to administer the DS1 circuit pack in **Section 3.2**. Click **OK**.



5. Interoperability Compliance Testing

The interoperability compliance testing focused on the following areas:

- Generation of alerts from RED ALERT to Avaya Communication Manager via the ISDN trunk
- Proper classification of call outcome by RED ALERT
- Recovery from adverse conditions during alert generation

5.1. General Test Approach

The feature test cases were conducted by using Amtelco RED ALERT to originate ISDN PRI calls to Avaya Communication Manager. The serviceability test cases were performed by disconnecting and reconnecting the physical cable to the Amtelco RED ALERT originating XDS T1/ISDN card.

The verification included monitoring the various reports from Amtelco RED ALERT during and after the test runs, and checking the status of the ISDN PRI on Avaya Communication Manager.

5.2. Test Results

All executed test cases passed.

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6. Verification Steps

This section provides the tests that can be performed to verify proper configuration of the ISDN PRI between Avaya Communication Manager and Amtelco RED ALERT.

6.1. Verify Avaya Communication Manager

Verify the status of the ISDN trunk group by using the "status trunk n" command, where "n" is the trunk group number administered in **Section 3.3**. While the trunks are connected and idle, verify the **Service State** for each connected trunk is "in-service/idle" as shown below.

```
status trunk 200                                                    Page   1

                            TRUNK GROUP STATUS

Member   Port     Service State      Mtce Connected Ports
                                    Busy

0200/001 01B1701  in-service/idle    no
0200/002 01B1702  in-service/idle    no
0200/003 01B1703  in-service/idle    no
0200/004 01B1704  in-service/idle    no
0200/005 01B1705  in-service/idle    no
0200/006 01B1706  in-service/idle    no
0200/007 01B1707  in-service/idle    no
0200/008 01B1708  in-service/idle    no
0200/009 01B1709  in-service/idle    no
0200/010 01B1710  in-service/idle    no
0200/011 01B1711  in-service/idle    no
0200/012 01B1712  in-service/idle    no
0200/013 01B1713  in-service/idle    no
0200/014 01B1714  in-service/idle    no

                press CANCEL to quit --  press NEXT PAGE to continue
```


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Page Down to Page 2 and verify the remaining trunk group members are “in-service/idle” as shown below.

```
status trunk 200

                            TRUNK GROUP STATUS

Member   Port     Service State      Mtce Connected Ports
                                    Busy

0200/015 01B1715  in-service/idle    no
0200/016 01B1716  in-service/idle    no
0200/017 01B1717  in-service/idle    no
0200/018 01B1718  in-service/idle    no
0200/019 01B1719  in-service/idle    no
0200/020 01B1720  in-service/idle    no
0200/021 01B1721  in-service/idle    no
0200/022 01B1722  in-service/idle    no
0200/023 01B1723  in-service/idle    no




Command successfully completed
```

Verify the status of the ISDN signaling group by using the “status signaling-group n” command, where “n” is the signaling group number administered in **Section 3.4**. Verify that the signaling group is “in-service” as indicated in the **Group State** and the **Primary D-Channel Level 3 State** field shown below. For this application, a Secondary D-Channel is not administered and will show “no-link” in the **Secondary D-Channel Level 3 State** field.

```
status signaling-group 200
                         STATUS SIGNALING GROUP

       Group ID: 200                              Active NCA-TSC Count: 0
     Group Type: isdn-pri                          Active CA-TSC Count: 0
  Signaling Type: facility associated signaling
    Group State: in-service


                           Primary D-Channel


            Port: 01B1724        Level 3 State: in-service


                         Secondary D-Channel


            Port:                Level 3 State: no-link



Command:
```


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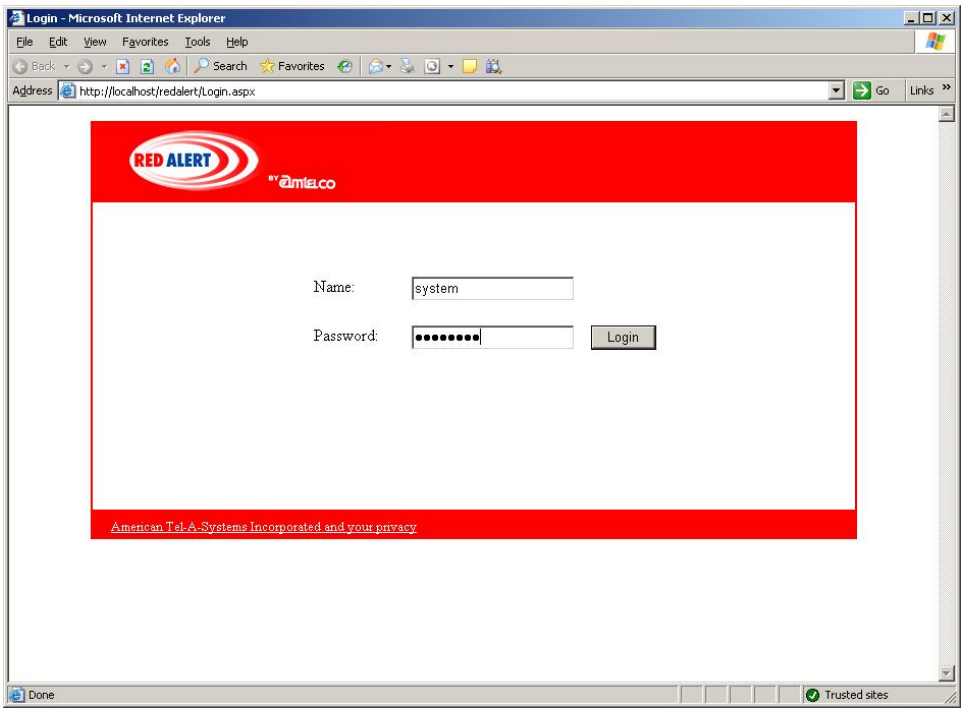
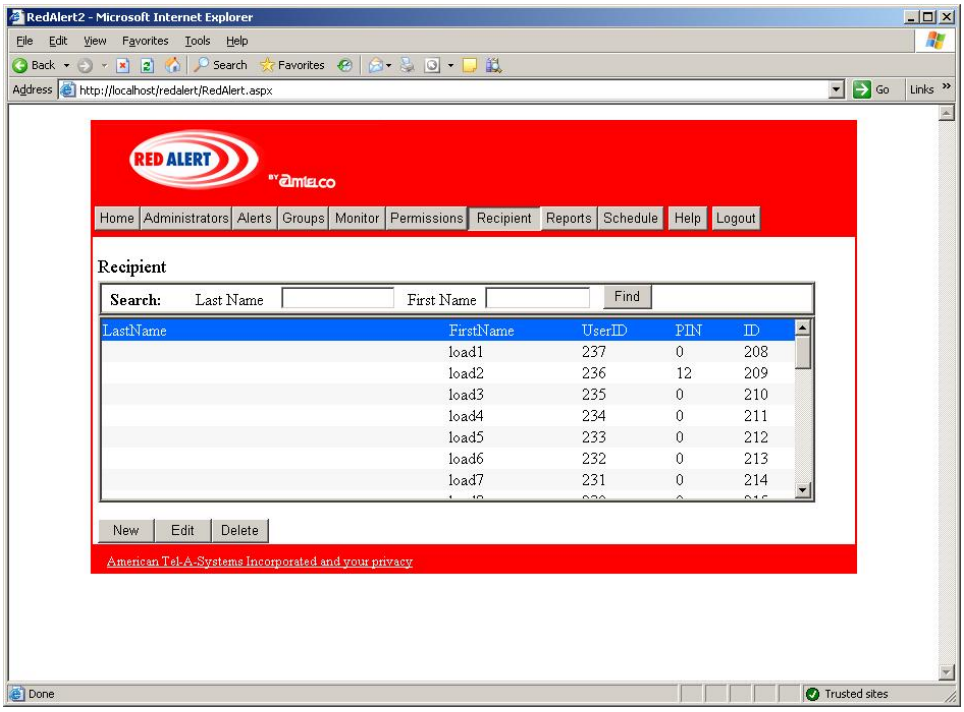
6.2. Verify Amtelco RED ALERT

Log on to the RED ALERT application using the web browser interface with proper URL.



On the initial screen, click **Recipient** to enter a test recipient. Then click on **New**.



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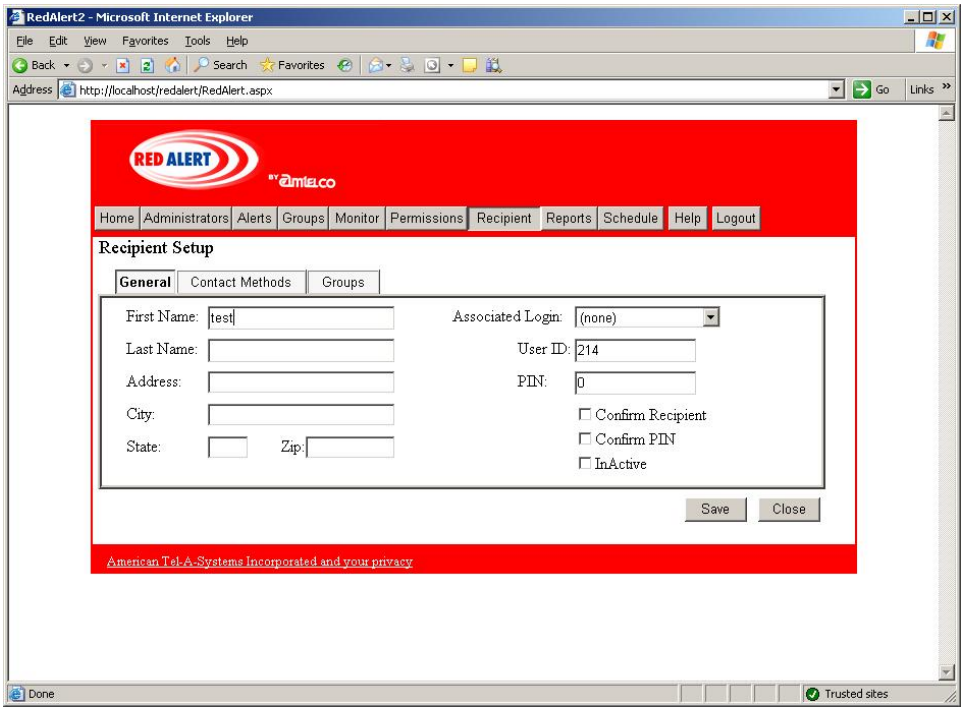
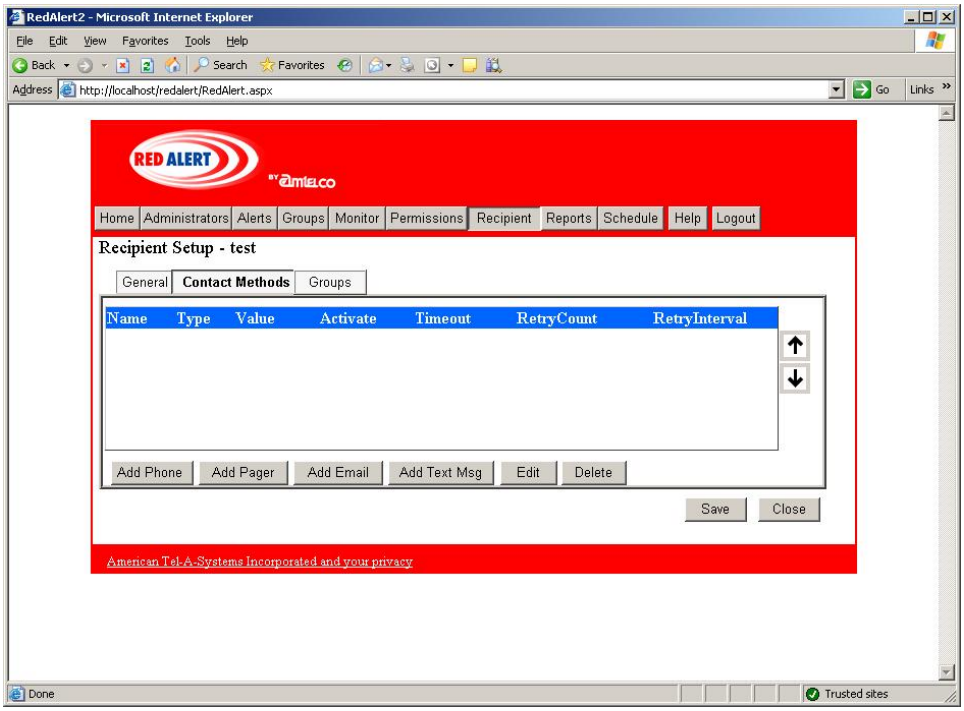
Enter “test” in the **First Name** field to start the setup of a test recipient.



Click the **Contact Methods** tab. Then, click **Add Phone**.



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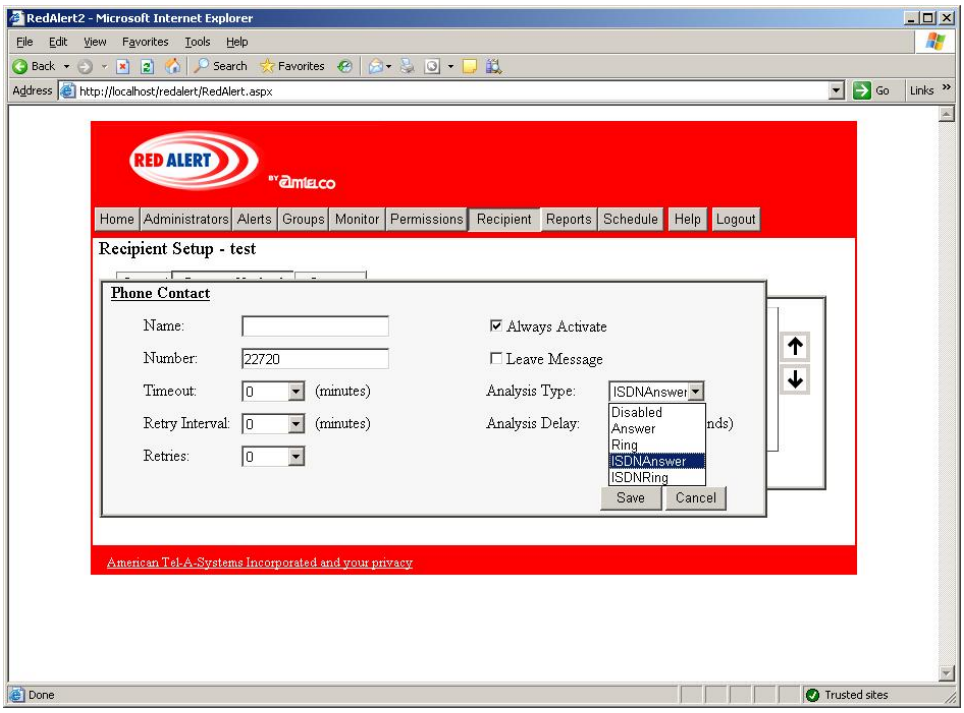
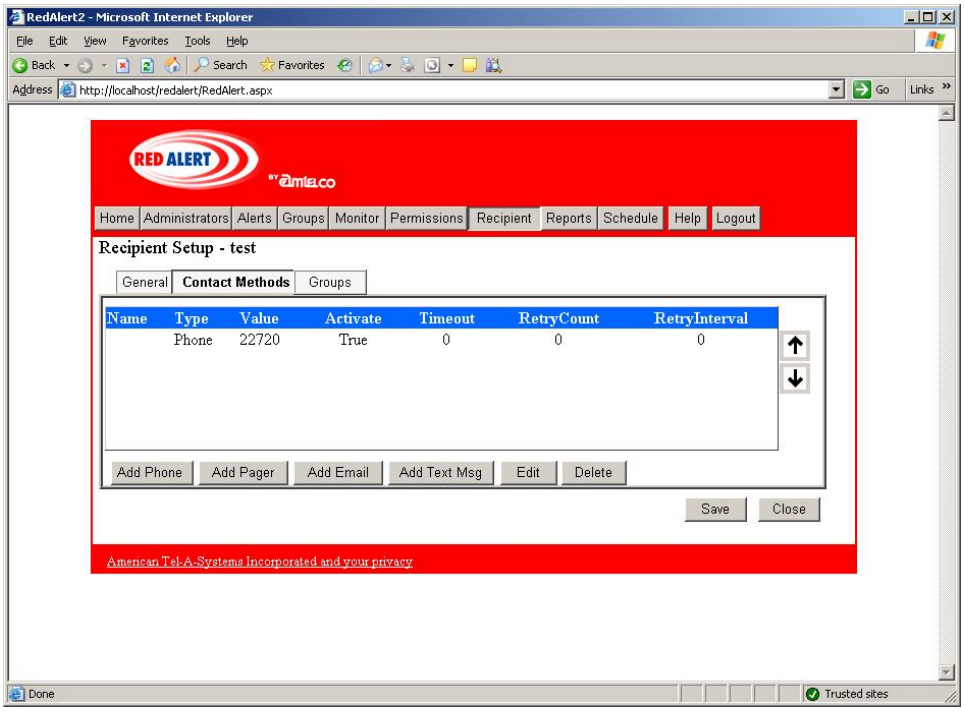
Fill in the **Name** field, if desired. Enter the number to be dialed in the **Number** field. Click the **Always Activate** checkbox and choose **Analysis Type** "ISDNAnswer". Then, click **Save**.



Verify that the new recipient is listed. Then, click **Save**.



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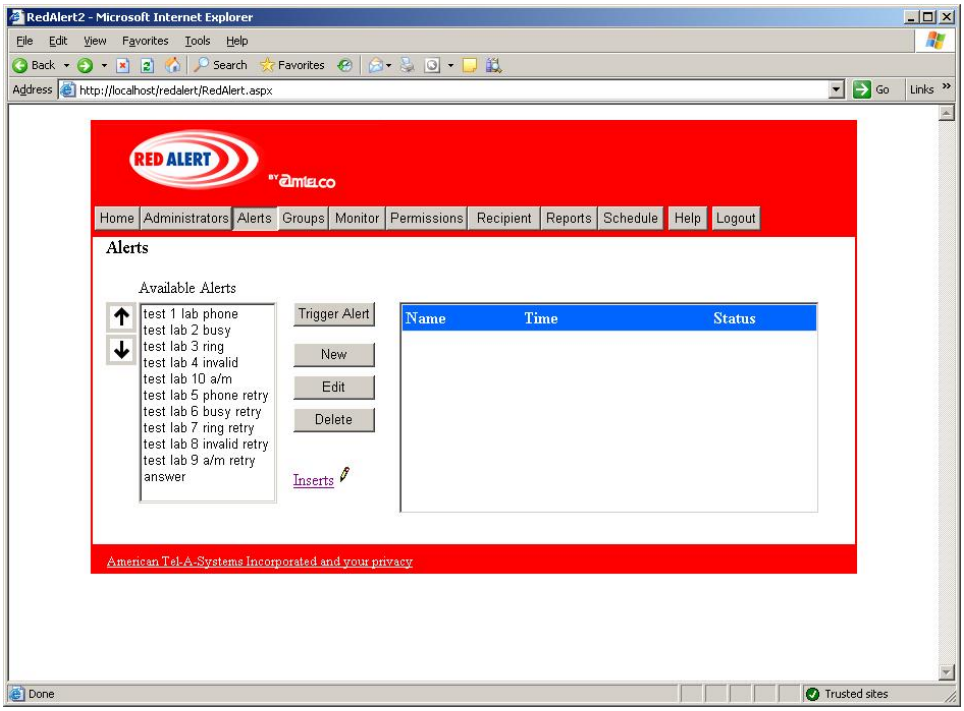
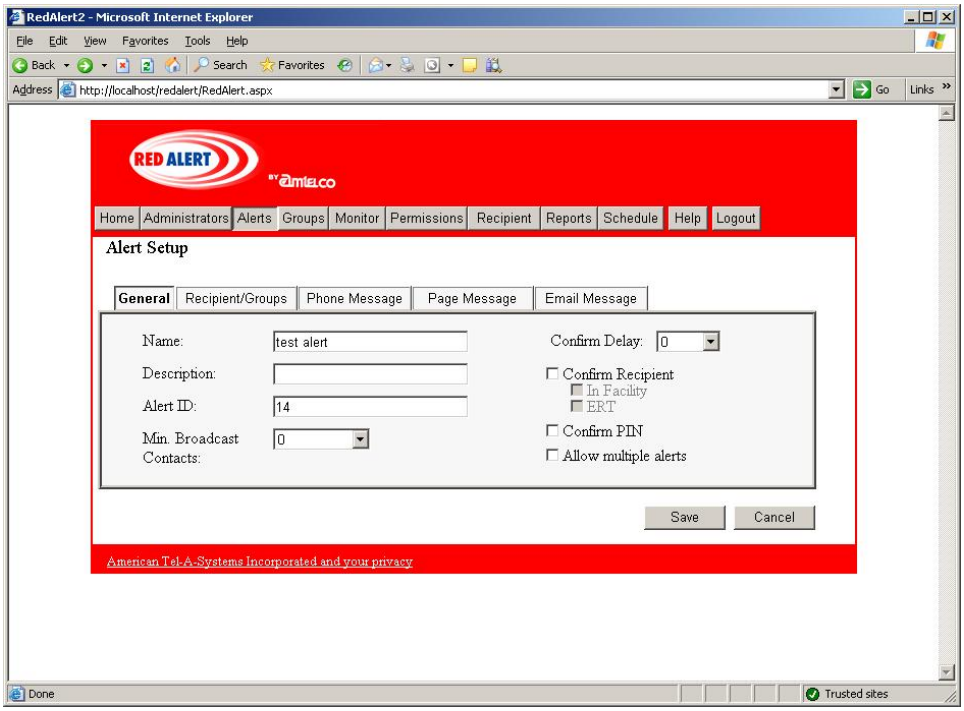
To set up a new Alert, click **Alerts**. Then, click **New**.



Enter “test alert” in the **Name** field.



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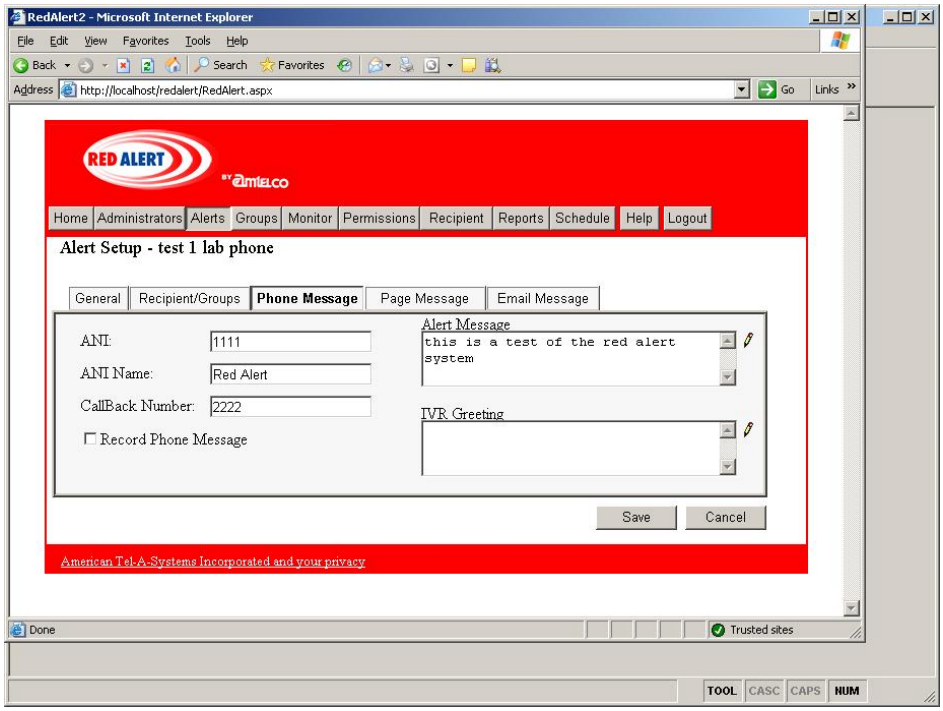
Click on the **Phone Message** Tab.



Fill in the **ANI** and **ANI Name** fields. A CallBack Number may also be entered, but not required for the test alert. Type the alert information to be relayed in the **Alert Message** field, such as "this is a test of the red alert system."

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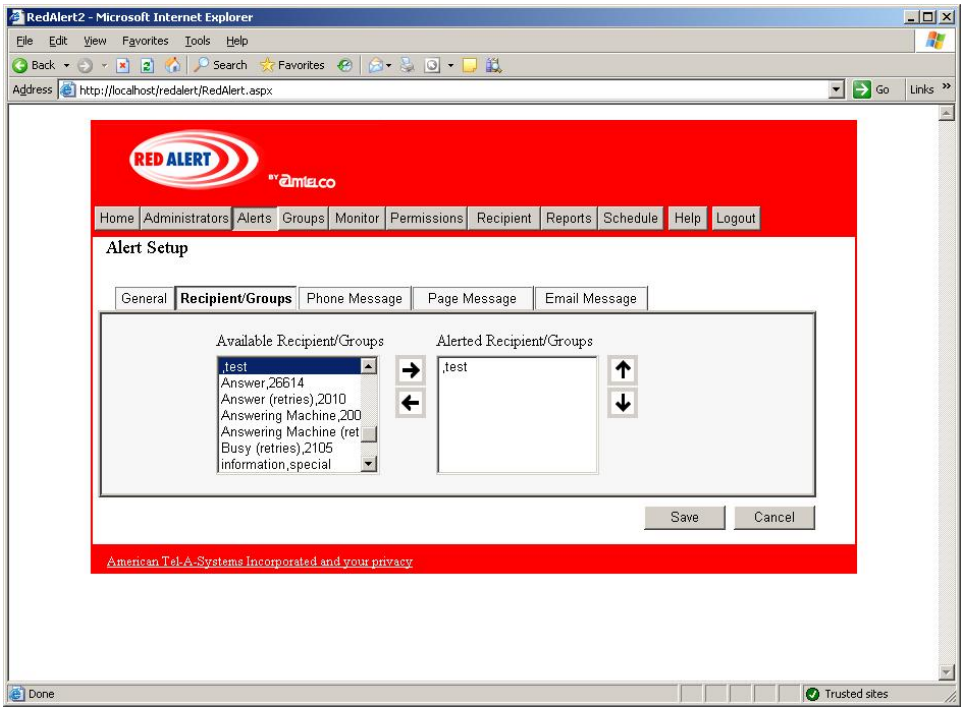
Click the **Recipients/Groups** tab.



Under **Available Recipient/Groups**, highlight the ",test" recipient by clicking on it. Then, click the right arrow so that the ",test" recipient appears in the **Alerted Recipient/Groups** list on the right. Then, click **Save**.

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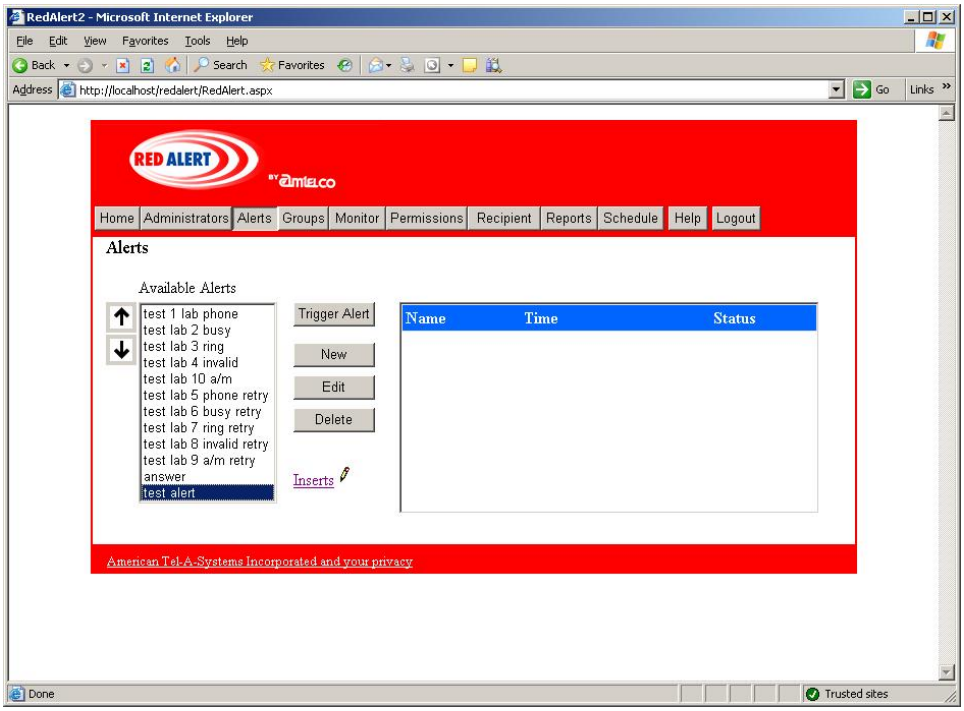
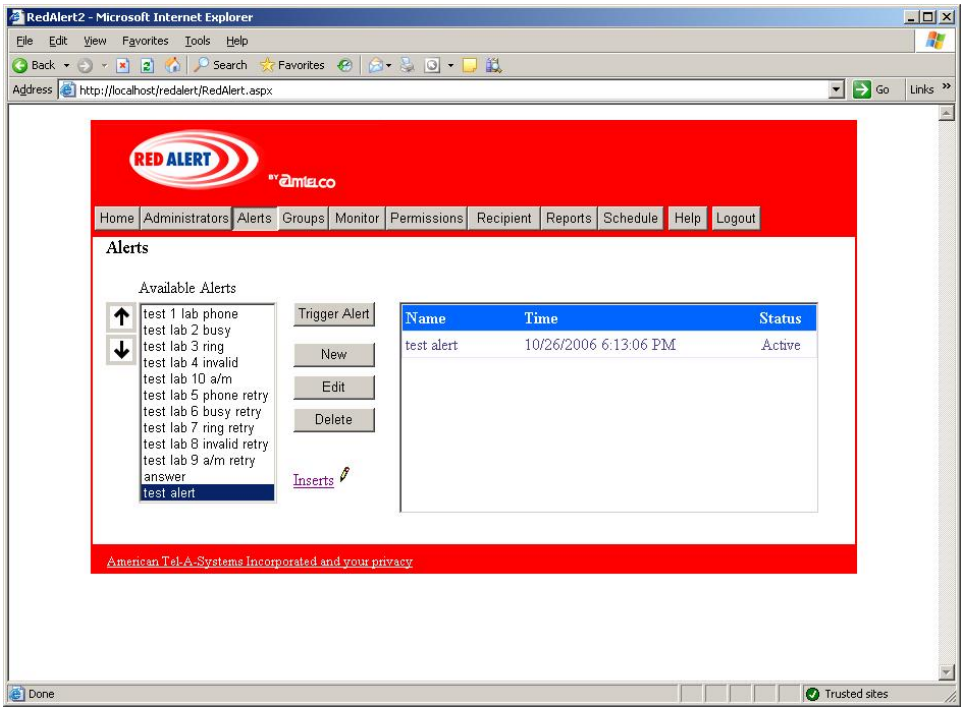
Click on **test alert** to highlight it. Then, click **TriggerAlert**.



Once the alert is triggered, it will be listed in the status window.



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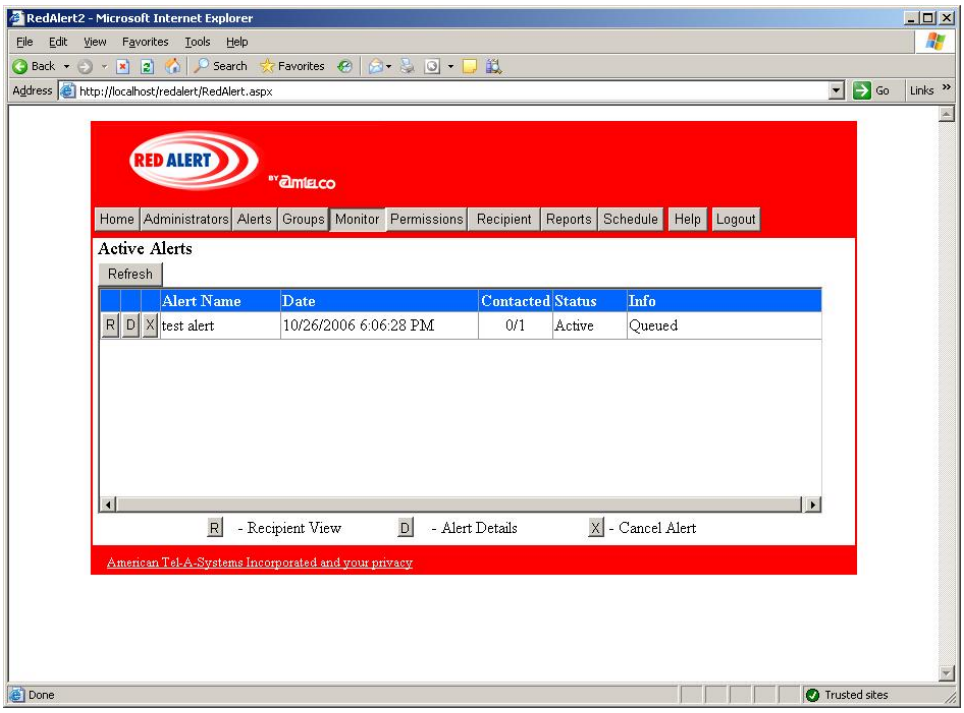
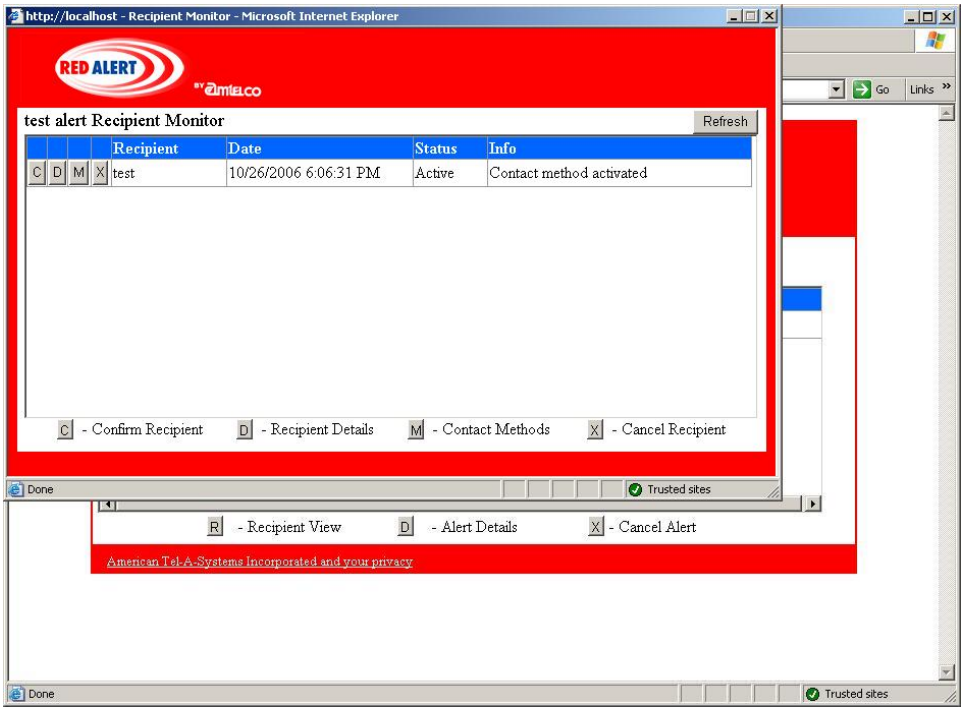
Click on **Monitor** to go to the real-time monitor. Then, click on the **R** button next to the active alert to see the **Recipient View**.



Click on the **M** button next to the active alert to see the **Contact Methods** window.



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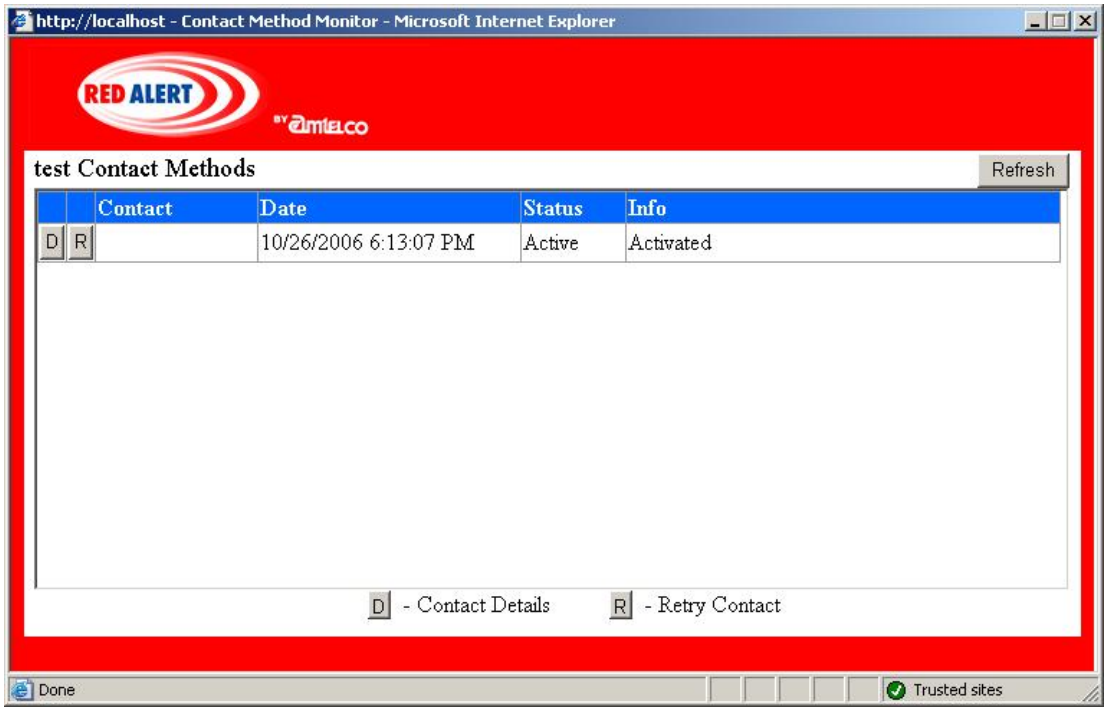
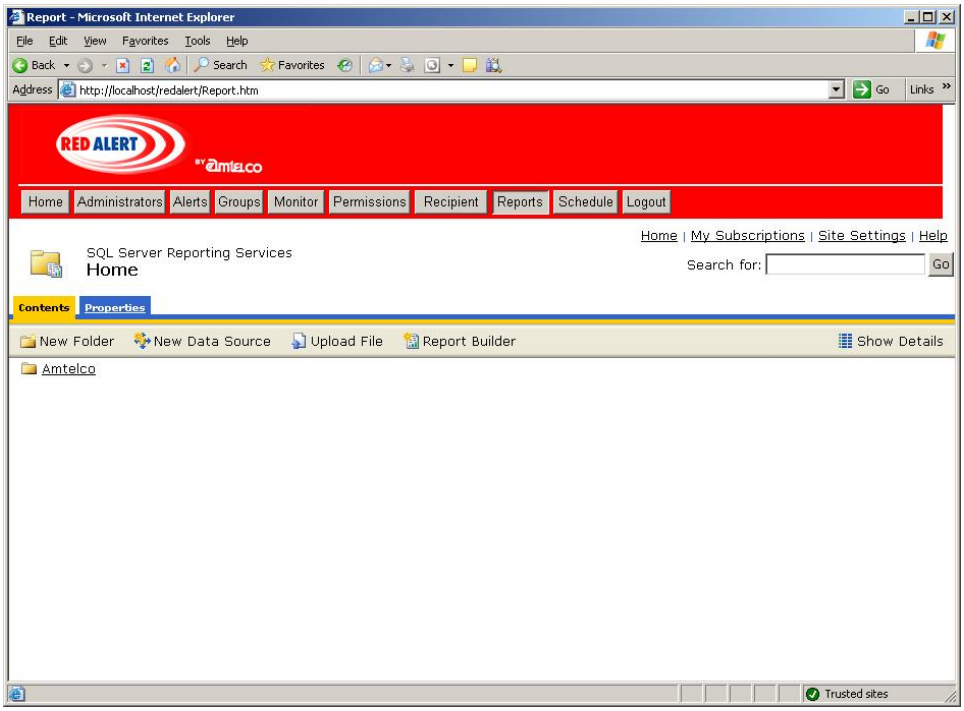
Click on the **D** button next to the active alert to see the **Contact Details** window.



On the initial screen, click **Reports** to access available reports. Then, click on **Amtelco**.



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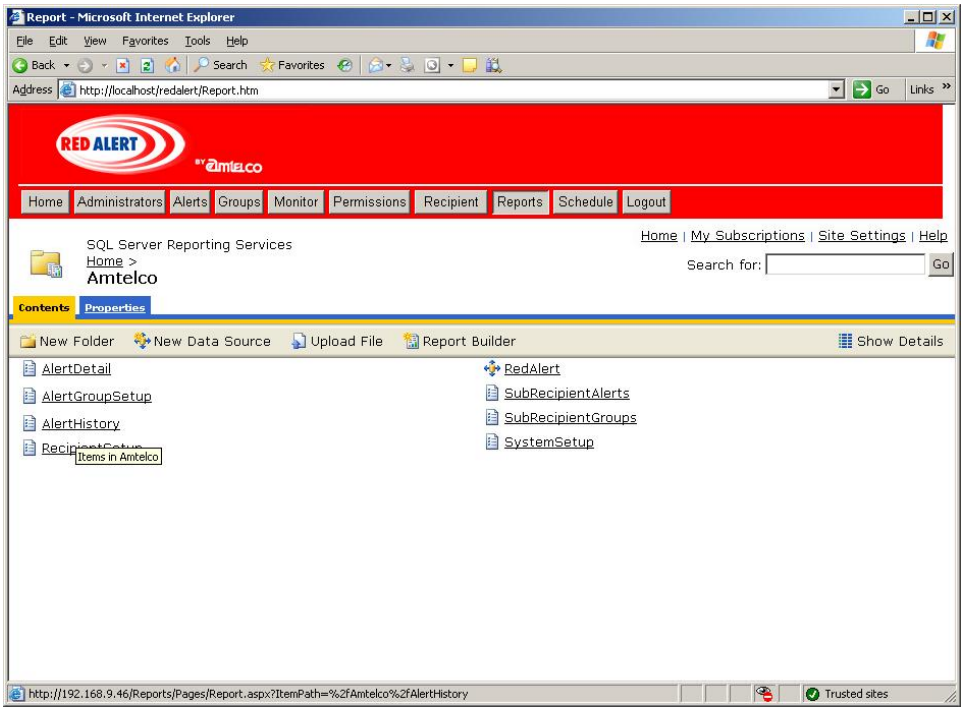
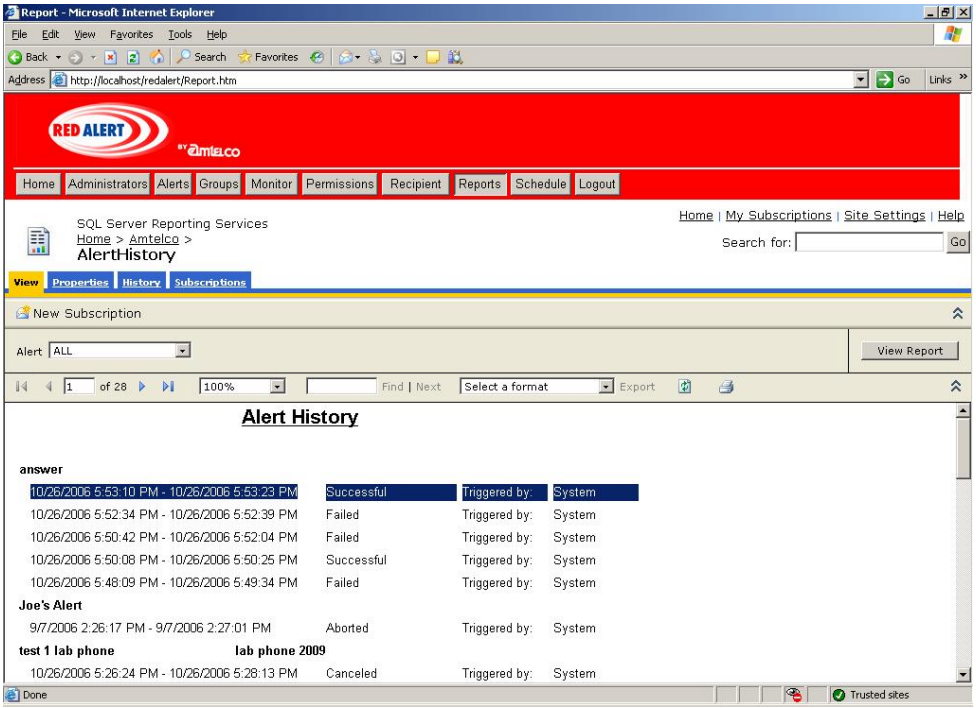
Click on either **AlertHistory** or **AlertDetail**.



Under **AlertHistory**, verify that **Successful** is reported.



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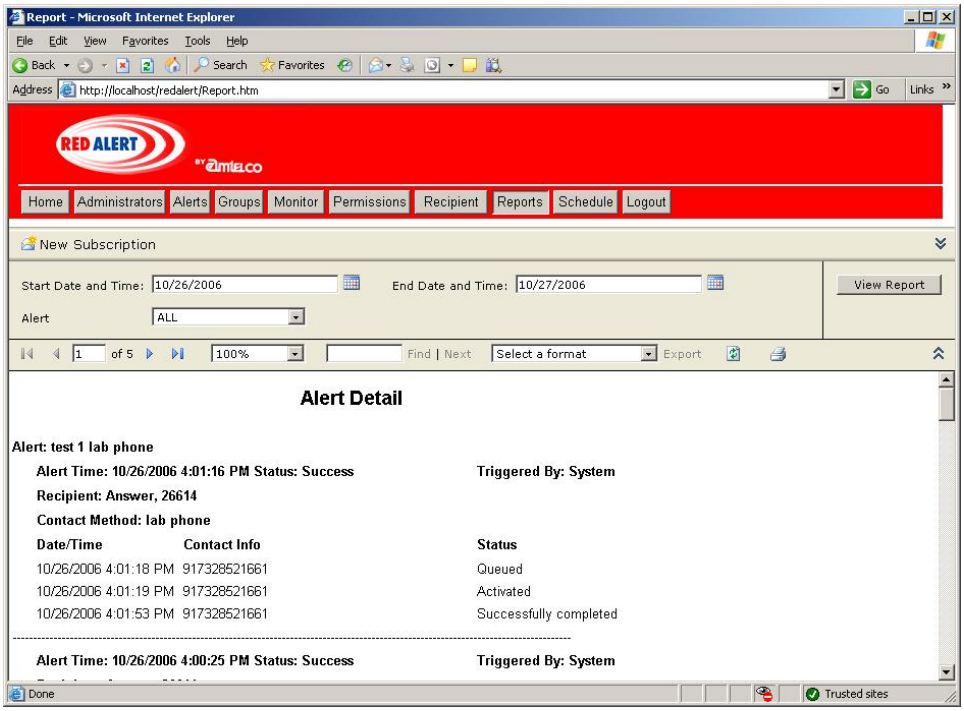
Under **AlertDetail**, verify that **Successfully completed** is reported.



7. Support

Technical support on Amtelco RED ALERT can be obtained through the following:

- Email the Amtelco support center via service@amtelco.com
- Call the Amtelco support center at 1-800-553-7679

8. Conclusion

These Application Notes describe the configuration steps required for Amtelco RED ALERT 1.0 to successfully interoperate with Avaya Communication Manager 3.1.2 using the ISDN PRI. All feature and serviceability test cases that were executed completed successfully.

9. Additional References

This section references the product documentation relevant to these Application Notes.

- *Administrator Guide for Avaya Communication Manager*, Document 03-300509, Issue 2, February 2006, available at http://support.avaya.com
- *RED ALERT Technical Notes, November 2006*
- *RED ALERT User Reference Guide, 2006*

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