AVAYA

Avaya Solution & Interoperability Test Lab

Application Notes for Configuring NovaLink NovaAlert with Avaya Communication Manager – Issue 1.0

Abstract

These Application Notes describe the compliance testing of the NovaLink NovaAlert alarm system with Avaya Communication Manager. These Application Notes contain an extensive description of the configurations for both NovaAlert and Avaya Communication Manager.

Information in these Application Notes has been obtained through Developer*Connection* compliance testing and additional technical discussions. Testing was conducted via the Developer*Connection* Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

The purpose of this document is to describe the compliance testing done with NovaAlert and Avaya Communication Manager, including a description of the configuration of each, a description of the tests which were performed, and a summary of the results of those tests.

The NovaAlert is a PC-resident application which is used in a health care, hotel or industrial environment for alerting, messaging or information services. NovaAlert can react to external alarm stimuli which indicate the existence of an emergency situation by informing affected persons of the situation.

NovaAlert supports a wide range of interfaces for input and output, where telephony is the one most commonly used for alarming.
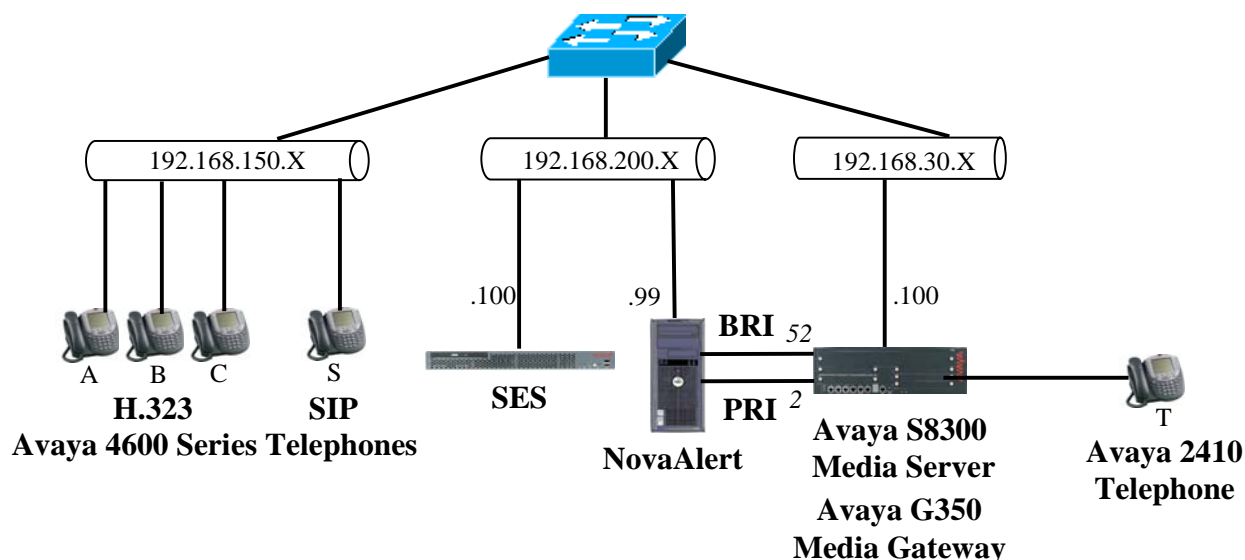
Figure 1: NovaAlert Test Configuration

The numbers associated with the BRI (52) and PRI (2) trunks shown in the diagram are trunk numbers. The function of each of the components in **Figure 1** is as follows:

- The NovaAlert server signals alarm events to Avaya IP Telephones attached to Avaya Communication Manager via either a Basic Rate or Primary Rate Integrated Services Digital Network (ISDN) interface.
- Avaya Communication Manager runs on the Avaya S8300 Media Server and communicates with the NovaAlert server and Avaya Telephones via the Avaya G350 Media Gateway.
- The Avaya SIP Enablement Services (SES) server is the interface between Avaya Communication Manager and Avaya SIP Telephones.

2. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Equipment	Software Version
Avaya S8300 Media Server	Avaya Communications Manager 4.0 (R014x.00.0.730.5) Service Pack 00.0.730.5-13566
Avaya SIP Enablement Services Server	SES-3.1.2.0-309.0
Avaya G350 Media Gateway	26.31.0
MM720AP BRI	HW05 FW007
MM712AP DCP	HW05 FW008
MM710AP DS1	HW05 FW018
Avaya 4600 series H.323 stations	2.8
Avaya 4600 series SIP stations	2.2.2
NovaLink NovaAlert	7.5 SP 1A
Gerdes Primux 1S2M II / 4S0 II	3.6.4695
Microsoft Windows Server 2003 SE	SP2

Table 1: Version Numbers of Equipment and Software

3. Configuration

The following extensions are used for testing:

Extension	Designation
3000136	A
3000134	B
3000133	C
3000115	S
3000001	T
2000000	NovaAlert via PRI
5200000	NovaAlert via BRI

Table 2: Extensions Used for Testing

3.1. Configure Avaya Communication Manager

The configuration and verification operations illustrated in this section were all performed using the Avaya Communication Manager SAT terminal via ssh port 5022.

The information provided in this section describes the configuration of Avaya Communication Manager for this solution. For all other provisioning information such as installation and configuration, please refer to the product documentation in reference [1].

The configuration operations describe in this section can be summarized as follows:

- Verify that the licenses allocated to the system are sufficient to the support the required configuration.
- Configure the dial plan and call routing required for the NovaAlert configuration.
- Configure the BRI and PRI interfaces which are used to connect to the NovaAlert server.
- Configure the telephone stations which are to be used for testing.
- Configure Avaya Communication Manager as required to interface to the Avaya SIP Enablement Services server.

3.1.1. Verify system-parameters customer-options

Use the **display system-parameters customer-options** command to verify that Avaya Communication Manager is licensed to meet the minimum requirements to interoperate with the NovaAlert server. Those items shown in bold indicate required values or minimum capacity requirements. If these are not met in the configuration, please contact an Avaya representative for further assistance.

On page 1 of this form, verify that the "Maximum Off-PBX Telephones – OPS" is sufficient for the number of Avaya SIP Telephones to be used.

```
display system-parameters customer-options                    Page   1 of  10
                           OPTIONAL FEATURES

    G3 Version: V14
      Location: 2                              RFA System ID (SID): 1
      Platform: 13                             RFA Module ID (MID): 1

                                                            USED
                            Platform Maximum Ports: 900    76
                                  Maximum Stations: 450    7
                           Maximum XMOBILE Stations: 0     0
                  Maximum Off-PBX Telephones - EC500: 0    0
                  Maximum Off-PBX Telephones -   OPS: 5    2
                  Maximum Off-PBX Telephones - PBFMC: 0    0
                  Maximum Off-PBX Telephones - PVFMC: 0    0
                  Maximum Off-PBX Telephones - SCCAN: 0    0
```

Figure 2: System-Parameters Customers-Options Form, Page 1

On page 2, the value configured for "Maximum Concurrently Registered IP Stations" must be sufficient to support the total number of IP stations used.

The number "Maximum Administered SIP Trunks" must be sufficient to support the maximum number of members assigned to all SIP trunks.

```
display system-parameters customer-options                    Page   2 of  10
                              OPTIONAL FEATURES

IP PORT CAPACITIES                                            USED
                  Maximum Administered H.323 Trunks: 30       5
         Maximum Concurrently Registered IP Stations: 10      3
             Maximum Administered Remote Office Trunks: 0      0
Maximum Concurrently Registered Remote Office Stations: 0     0
              Maximum Concurrently Registered IP eCons: 0      0
   Max Concur Registered Unauthenticated H.323 Stations: 0    0
                 Maximum Video Capable H.323 Stations: 0      0
                 Maximum Video Capable IP Softphones: 0       0
                     Maximum Administered SIP Trunks: 10      3

     Maximum Number of DS1 Boards with Echo Cancellation: 0   0
                            Maximum TN2501 VAL Boards: 0       0
                   Maximum Media Gateway VAL Sources: 0        0
            Maximum TN2602 Boards with 80 VoIP Channels: 0     0
           Maximum TN2602 Boards with 320 VoIP Channels: 0     0
     Maximum Number of Expanded Meet-me Conference Ports: 0    0
```

Figure 3: System-Parameters Customers-Options Form, Page 2

On page 3 of this form, the "Cvg Of Calls Redirected Off-net" parameter must by set to "y" to allow redirection of calls to NovaAlert.

```
display system-parameters customer-options                    Page   3 of  10
                              OPTIONAL FEATURES

       Abbreviated Dialing Enhanced List? n        Audible Message Waiting? n
            Access Security Gateway (ASG)? n           Authorization Codes? n
            Analog Trunk Incoming Call ID? n                    CAS Branch? n
 A/D Grp/Sys List Dialing Start at 01? n                          CAS Main? n
Answer Supervision by Call Classifier? n          Change COR by FAC? n
                                  ARS? y  Computer Telephony Adjunct Links? n
                  ARS/AAR Partitioning? y  Cvg Of Calls Redirected Off-net? y
            ARS/AAR Dialing without FAC? y                      DCS (Basic)? n
              ASAI Link Core Capabilities? n             DCS Call Coverage? n
              ASAI Link Plus Capabilities? n             DCS with Rerouting? n
         Async. Transfer Mode (ATM) PNC? n
 Async. Transfer Mode (ATM) Trunking? n    Digital Loss Plan Modification? n
            ATM WAN Spare Processor? n                            DS1 MSP? n
                                 ATMS? n            DS1 Echo Cancellation? n
                  Attendant Vectoring? n
```

Figure 4: System-Parameters Customers-Options Form, Page 3

On page 4, the parameter must be set as show in the following table.

Parameter	Required Setting	Comment
IP Stations	y	This is required so that IP stations can be configured
Enhanced EC500	y	This is required enable the allocation of off-PBX SIP telephones
ISDN-BRI Trunks	y	This is required allow the allocation of the BRI trunk to be attached to NovaAlert.
ISDN-PRI	y	This is required to allow the allocation of the PRI trunk to be attached to NovaAlert.

Table 3: DS1 Parameters for PRI Interface

```
display system-parameters customer-options                      Page   4 of  10
                              OPTIONAL FEATURES

   Emergency Access to Attendant? y                          IP Stations? y
           Enable 'dadmin' Login? y
           Enhanced Conferencing? n                     ISDN Feature Plus? n
               Enhanced EC500? y        ISDN Network Call Redirection? n
     Enterprise Survivable Server? n                    ISDN-BRI Trunks? y
       Enterprise Wide Licensing? n                            ISDN-PRI? y
             ESS Administration? n            Local Survivable Processor? n
           Extended Cvg/Fwd Admin? n                 Malicious Call Trace? n
       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? n                 Multifrequency Signaling? y
       Global Call Classification? n      Multimedia Call Handling (Basic)? n
             Hospitality (Basic)? y    Multimedia Call Handling (Enhanced)? n
 Hospitality (G3V3 Enhancements)? n
                       IP Trunks? y


           IP Attendant Consoles? n
```

Figure 5: System-Parameters Customers-Options Form, Page 4

On page 8, the "Value-Added (VALU)?" parameter must be set to "y" to enable QSIG features required by NovaAlert.

```
display system-parameters customer-options                      Page   8 of  10
                          QSIG OPTIONAL FEATURES

                                  Basic Call Setup? y
                      Basic Supplementary Services? y
                              Centralized Attendant? n
                              Interworking with DCS? n
               Supplementary Services with Rerouting? y
                       Transfer into QSIG Voice Mail? n
                               Value-Added (VALU)? y
```

Figure 6: System-Parameters Customers-Options Form, Page 8

3.1.2. Configure Node Names

Use the **change node-names ip** command to configure the IP address of the NovaAlert and the SES servers.

```
change node-names ip                                         Page   1 of   2
                              IP NODE NAMES
    Name               IP Address
default              0.0.0.0
novaalert            192.168.200.99
procr                192.168.30.100
ses                  192.168.200.100
```

Figure 7: Node-Names IP Form

3.1.3. Configure PRI Interface to the NovaAlert Server

Use the **add ds1 <media module hardware address>** command to configure the DS1 interface card to serve as a Primary Rate ISDN interface. Assign those values for this command as shown in the following table.

Parameter	Usage
Bit Rate	Assign the bit rate to "2.048", as required to connect to the NovaAlert E1 interface card.
Line Coding	Assign the bit rate to "hdb3", as required to connect to the NovaAlert E1 interface card.
Name	Assign a name to be used to identify the card.
Signaling Mode	Assign the signaling mode to "isdn-pri".
Connect	Specify the connection is to a "pbx"
Interface	Specify the G350 is to serve as the "peer-master".
Peer Protocol	Specify the QSIG protocol is to be used.
Interface Companding	Specify "a-law speech encoding is to be used.
CRC?	Specify a cyclic-redundancy-check sequence is to be sent with data frames to verify correct transmission.
Idle Code	Specify that an idle sequence of "11111111" is to be sent on the interface when no data is being transmitted.

Table 4: DS1 Parameters for PRI Interface

```
add ds1 1v5                                               Page   1 of   1
                          DS1 CIRCUIT PACK


          Location: 001V5                       Name: QSIG-PRI
          Bit Rate: 2.048                 Line Coding: hdb3

      Signaling Mode: isdn-pri
             Connect: pbx                   Interface: peer-master
  TN-C7 Long Timers? n                   Peer Protocol: Q-SIG
Interworking Message: PROGress                      Side: a
Interface Companding: alaw                          CRC? y
           Idle Code: 11111111       Channel Numbering: sequential
                          DCP/Analog Bearer Capability: 3.1kHz


                                     T303 Timer(sec): 4

      Slip Detection? n              Near-end CSU Type: other
```

Figure 8: Ds1 Form for PRI Interface

Use the **add trunk-group** command to configure the Trunk Group to the NovaAlert Server.
Assign values for this command as shown in the following table.

Parameter	Usage
Group Type	Specify the Group Type as "isdn"
Group Name	Select an appropriate name to identify the device.
TAC	Specify a trunk access code which can be used to provide dial access to the trunk.
Carrier Medium	Specify a Carrier Medium of "PRI/BRI", as PRI will be used for this trunk.
Dial Access	Allow dial access to the trunk by dialing the trunk access code.
Service Type	Designate the trunk as a "tie" line to a peer system.
Supplementary Service Protocol	Specify a Supplementary Service Protocol of "b" for QSIG.
Digit Handling	Specify "overlap/overlap" to allow overlap sending of dialed digits.
Format (page 2)	Specify "unk-unk" to use unknown dialing plan for calls in both directions.
Send Name	Specify "y" so that the name of the caller is sent for outgoing calls.
Send Calling Number	Specify "y" so that the number of the caller is sent for outgoing calls.
Format (page 3)	Specify "unknown" to use unknown dialing plan for both for calls in both directions.
Send Connected Number	Specify "y" so that the number of the connected party is sent to the caller.
Group Member Assignments	Assign the interface ports on the MM710AP to the trunk group members. Note that port 16 is used for the D channel, which must be assigned to the signaling group associated with this trunk.

Table 5: Trunk-Group Parameters for PRI Interface

```
add trunk-group 2                                            Page   1 of  21
                             TRUNK GROUP

Group Number: 2                    Group Type: isdn       CDR Reports: y
  Group Name: NOVA S2M QSIG              COR: 1      TN: 1     TAC: *02
   Direction: two-way       Outgoing Display? n    Carrier Medium: PRI/BRI
 Dial Access? y             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
```

Figure 9: Trunk-Group Form for PRI Interface, Page 1

```
add trunk-group 2                                            Page   2 of  21
     Group Type: isdn

TRUNK PARAMETERS
        Codeset to Send Display: 6     Codeset to Send National IEs: 6
        Max Message Size to Send: 260   Charge Advice: none
  Supplementary Service Protocol: b     Digit Handling (in/out): overlap/overlap
      Digit Treatment:                                Digits:
          Trunk Hunt: ascend
                                        Digital Loss Group: 13
Incoming Calling Number - Delete:     Insert:          Format: unk-unk
           Bit Rate: 1200     Synchronization: async    Duplex: full
 Disconnect Supervision - In? y  Out? y
 Answer Supervision Timeout: 0
         Administer Timers? n
```

Figure 10: Trunk-Group Form for PRI Interface, Page 2

```
add trunk-group 2                                            Page   3 of  21
TRUNK FEATURES
        ACA Assignment? n            Measured: none     Wideband Support? n
                              Internal Alert? n      Maintenance Tests? y
                              Data Restriction? n    NCA-TSC Trunk Member:
                              Send Name: y       Send Calling Number: y
          Used for DCS? n          Hop Dgt? n     Send EMU Visitor CPN? n
   Suppress # Outpulsing? n    Format: unkknown
 Outgoing Channel ID Encoding: preferred      UUI IE Treatment: service-provider

                                          Replace Restricted Numbers? n
                                          Replace Unavailable Numbers? n
                                             Send Connected Number: y
                                            Hold/Unhold Notifications? y
          Send UUI IE? y            Modify Tandem Calling Number? n
            Send UCID? n
 Send Codeset 6/7 LAI IE? y                    Ds1 Echo Cancellation? n

   Apply Local Ringback? n
 Show ANSWERED BY on Display? y
                        Network (Japan) Needs Connect Before Disconnect? n
```

Figure 11: Trunk-Group Form for PRI Interface, Page 3

```
add trunk-group 2                                              Page   5 of  21
                                TRUNK GROUP
                                Administered Members (min/max):   1/30
GROUP MEMBER ASSIGNMENTS             Total Administered Members:  29

        Port    Code Sfx Name        Night           Sig Grp
  1: 001V501    MM710                                  2
  2: 001V502    MM710                                  2
  3: 001V503    MM710                                  2
  4: 001V504    MM710                                  2
  5: 001V505    MM710                                  2
  6: 001V506    MM710                                  2
  7: 001V507    MM710                                  2
  8: 001V508    MM710                                  2
  9: 001V509    MM710                                  2
 10: 001V510    MM710                                  2
 11: 001V511    MM710                                  2
 12: 001V512    MM710                                  2
 13: 001V513    MM710                                  2
 14: 001V514    MM710                                  2
 15: 001V515    MM710                                  2
```

Figure 12: Trunk-Group Form for PRI Interface, Page 5

```
add trunk-group 2                                              Page   6 of  21
                                TRUNK GROUP
                                Administered Members (min/max):   1/30
GROUP MEMBER ASSIGNMENTS             Total Administered Members:  30

        Port    Code Sfx Name        Night           Sig Grp
 16: 001V517    MM710                                  2
 17: 001V518    MM710                                  2
 18: 001V519    MM710                                  2
 19: 001V520    MM710                                  2
 20: 001V521    MM710                                  2
 21: 001V522    MM710                                  2
 22: 001V523    MM710                                  2
 23: 001V524    MM710                                  2
 24: 001V525    MM710                                  2
 25: 001V526    MM710                                  2
 26: 001V527    MM710                                  2
 27: 001V528    MM710                                  2
 28: 001V529    MM710                                  2
 29: 001V530    MM710                                  2
 30: 001V531    MM710                                  2
```

Figure 13: Trunk-Troup Form for PRI Interface, Page 6

Use the **add signaling-group** command to allocate a signaling group to this trunk.

Parameter	Usage
Group Type	Specify "isdn-pri" for ISDN primary rate.
D-Channel	Assign port 16 of the DS1 interface as the D channel.
Trunk Group for Channel Selection	Specify "2" as the Trunk Group to be used for channel selection.
TSC Supplementary Service Protocol	Specify "b" to designate use of the QSIG protocol.
Max number of NCA TSC	Specify "4" to allow NovaAlert to control the message waiting lamp of Avaya Telephones.

Table 6: Signaling-Group Parameters for PRI Interface

```
add signaling-group 2                                        Page   1 of   1
                              SIGNALING GROUP

 Group Number: 2                    Group Type: isdn-pri
                     Associated Signaling? y        Max number of NCA TSC: 4
                       Primary D-Channel: 001V516     Max number of CA TSC: 0
                                                    Trunk Group for NCA TSC:

        Trunk Group for Channel Selection: 2
        TSC Supplementary Service Protocol: b
```

Figure 14: Signaling-Group Form for PRI Interface

3.1.4. Configure Dial Plan and Call Routing

Use the **change dialplan analysis** command to specify that dialed strings which begin with "2"or "3" are extensions. The extensions local to this PBX are all seven digit numbers which begin with a "3". The extensions assigned to the NovaAlert are all seven digit numbers which begin with "2". The dial string "*02" is used as a trunk access code to access the NovaAlert trunk.

```
change dialplan analysis                                      Page   1 of  12
                          DIAL PLAN ANALYSIS TABLE
                                              Percent Full:    3

     Dialed   Total  Call    Dialed   Total  Call    Dialed    Total  Call
     String   Length Type    String   Length Type    String    Length Type
      2        7      ext
      3        7      ext
      52       7      ext
      *02      3      dac
      *52      3      dac
      *83      3      dac
```

Figure 15: Dialplan Analysis Form

Use the **change uniform-dialplan** command to designate extensions which begin with "2" or "52" as aar numbers.

```
change uniform-dialplan 0                                    Page   1 of   2
                        UNIFORM DIAL PLAN TABLE
                                                         Percent Full: 0

 Matching                    Insert              Node
 Pattern        Len Del      Digits     Net Conv Num
 2               7   0                  aar  n
 52              7   0                  aar  n
```

Figure 16: Uniform-Dialplan Form

Use the **change aar analysis** command to select routing pattern 2 for numbers which have the leading dialed string "2", as specified in the uniform dial plan shown in **Figure 16**.

```
change aar analysis 0                                        Page   1 of   2
                        AAR DIGIT ANALYSIS TABLE
                                                         Percent Full:   3

          Dialed           Total      Route    Call   Node ANI
          String        Min  Max   Pattern    Type    Num  Reqd
    2                    7    7       2        aar          n
    52                   7    7      52        aar          n
```

Figure 17: Aar Analysis Form

Use the **change route-pattern** command to route numbers using Routing Pattern 2 via Trunk Group 2.

```
change route-pattern 2                                       Page   1 of   3
                  Pattern Number: 2   Pattern Name: NovaAlert PRI
                          SCCAN? n      Secure SIP? n
    Grp FRL NPA Pfx Hop Toll No.  Inserted                      DCS/ IXC
    No          Mrk Lmt List Del  Digits                        QSIG
                        Dgts                                    Intw
 1: 2    0                                                       n   user
 2:                                                              n   user
 3:                                                              n   user
 4:                                                              n   user
 5:                                                              n   user
 6:                                                              n   user


     BCC VALUE  TSC CA-TSC   ITC BCIE Service/Feature PARM  No. Numbering LAR
    0 1 2 M 4 W     Request                                 Dgts Format
                                                                Subaddress
 1: y y y y y n  n         rest                                          none
 2: y y y y y n  n         rest                                          none
 3: y y y y y n  n         rest                                          none
 4: y y y y y n  n         rest                                          none
 5: y y y y y n  n         rest                                          none
 6: y y y y y n  n         rest                                          none
```

Figure 18: Route-Pattern 2 Form

Use the **change route-pattern** command to dial numbers for routing pattern 52 via trunk 52, as shown in **Figure 19Error! Reference source not found.**

```
change route-pattern 52                                        Page   1 of   3
                    Pattern Number: 52  Pattern Name: NovaAlert BRI
                            SCCAN? n      Secure SIP? n
    Grp FRL NPA Pfx Hop Toll No.  Inserted                          DCS/ IXC
    No          Mrk Lmt List Del  Digits                            QSIG
                            Dgts                                    Intw
 1: 52     0                                                        n    user
 2:                                                                 n    user
 3:                                                                 n    user
 4:                                                                 n    user
 5:                                                                 n    user
 6:                                                                 n    user

     BCC VALUE  TSC CA-TSC    ITC BCIE Service/Feature PARM  No. Numbering LAR
     0 1 2 M 4 W    Request                                  Dgts Format
                                                           Subaddress
 1: y y y y y n  n            rest                                         none
 2: y y y y y n  n            rest                                         none
 3: y y y y y n  n            rest                                         none
 4: y y y y y n  n            rest                                         none
 5: y y y y y n  n            rest                                         none
 6: y y y y y n  n            rest                                         none
```

Figure 19: Route-Pattern From for BRI Interface

3.1.5. Configure BRI Interface to the NovaAlert Server

Use the **add bri-trunk-board** command to configure port 1 of the MM720 interface card to serve as a basic rate interface. Assign those values for this command as shown in the following table.

Parameter	Usage
Termination Type	Set this to "NT".
Interface	Set this to "peer-master".
Max NCA TSC	Set this to 4 to provide control of the message waiting light from NovaAlert.

Table 7: Parameters for BRI-Trunk-Board

```
add bri-trunk-board 1v2                                       Page   1 of   2
                          ISDN-BRI TRUNK CIRCUIT PACK


               Location: 001V2                        Name: S0 TRUNKS
   Interface Companding: a-law    DCP/Analog Bearer Capability: 3.1kHz
  T3 Timer Length (sec): 15                 Termination Type: NT
 Port  Interface   Side  Cntry/Peer  TEI                    Layer 1 Detect
                         Protocol                           Stable? Slips?
   1: peer-master   a       QSIG     0                          y       n
   2:                                0                          y       n
   3:                                0                          y       n
   4:                                0                          y       n
   5:                                0                          y       n
   6:                                0                          y       n
   7:                                0                          y       n
   8:                                0                          y       n
```

Figure 20: BRI-Trunk-Board Form for BRI Interface, page 1

```
add bri-trunk-board 1v2                                       Page   2 of   2
                          ISDN-BRI TRUNK CIRCUIT PACK

 Port  Interwork  XID   Endpt      SPID      Endpt    SPID     Endpt   Max
       Message  Test?   Init?                 ID                ID    NCA TSC
   1:  PROGress   n       n                                            4
   2:  PROGress   n       n                                            0
   3:  PROGress   n       n                                            0
   4:  PROGress   n       n                                            0
   5:  PROGress   n       n                                            0
   6:  PROGress   n       n                                            0
   7:  PROGress   n       n                                            0
   8:  PROGress   n       n                                            0

   Port Directory    Directory        Port Directory    Directory
        Number        Number               Number        Number
     1:                                  5:
     2:                                  6:
     3:                                  7:
     4:                                  8:
```

Figure 21: BRI-Trunk-Board Form for BRI Interface, page 2

Use the **add trunk-group** command to configure the MM720AP interface card to serve as basic rate interface. Assign values for this command as shown in the following table.

Parameter	Usage
Group Type	Specify the Group Type as "isdn"
Group Name	Select an appropriate name to identify the device.
TAC	Specify a trunk access code which can be used to provide dial access to the trunk. This dial string must be contained in the dial plan specified in **Figure 9**.
Carrier Medium	Specify a Carrier Medium of "PRI/BRI", as BRI will be used for this trunk.
Dial Access	Allow dial access to the trunk by dialing the trunk access code.
Service Type	Designate the trunk as a "tie" line to a peer system.
Supplementary Service Protocol	Specify a Supplementary Service Protocol of "b" for QSIG.
Digit Handling (in/out)	Specify "overlap/overlap" to allow overlap sending of dialed digits.
Send Name	Specify "y" so that the name of the caller is sent for outgoing calls.
Send Caller Number	Specify "y" so that the number of the caller is sent for outgoing calls.
Format	Specify "unknown" to use unknown dialing plan for calls in both directions.
Send Connected Number	Specify "y" so that the number of the connected party is sent to the caller.
QSIG Value-Added	Specify "y" to allow NovaAlert to control the message waiting lamp of the Avaya Telephones.
Group Member Assignments	Assign the interface ports on the MM720AP to the trunk group members.

Table 8: Parameters BRI Trunk Group

```
add trunk-group 52                                           Page   1 of  21
                              TRUNK GROUP

Group Number: 52                  Group Type: isdn        CDR Reports: y
  Group Name: BRI QSIG                    COR: 1       TN: 1       TAC: *52
   Direction: two-way        Outgoing Display? n     Carrier Medium: PRI/BRI
 Dial Access? y              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
```

Figure 22: Trunk-Group Form, Page 1

```
add trunk-group 52                                          Page   2 of  21
      Group Type: isdn

TRUNK PARAMETERS
         Codeset to Send Display: 6     Codeset to Send National IEs: 6
        Max Message Size to Send: 260   Charge Advice: end-on-request
   Supplementary Service Protocol: b    Digit Handling (in/out): overlap/overlap
         Digit Treatment:                                         Digits:
             Trunk Hunt: cyclical
                                                Digital Loss Group: 13
Incoming Calling Number - Delete:     Insert:            Format:
              Bit Rate: 1200     Synchronization: async    Duplex: full
 Disconnect Supervision - In? y  Out? y
 Answer Supervision Timeout: 0
          Administer Timers? n
```

Figure 23: Trunk-Group Form, Page 2

```
add trunk-group 52                                          Page   3 of  21
TRUNK FEATURES
        ACA Assignment? n          Measured: none      Wideband Support? n
                                Internal Alert? n      Maintenance Tests? y
                              Data Restriction? n    NCA-TSC Trunk Member:
                                  Send Name: y        Send Calling Number: y
              Used for DCS? n          Hop Dgt? n    Send EMU Visitor CPN? n
   Suppress # Outpulsing? n    Format: unknown
 Outgoing Channel ID Encoding: preferred    UUI IE Treatment: service-provider

             Decimal Point: period            Replace Restricted Numbers? n
                                             Replace Unavailable Numbers? n
                                               Send Connected Number: y
                                             Hold/Unhold Notifications? y
             Send UUI IE? n          Modify Tandem Calling Number? n
             Send UCID? n
 Send Codeset 6/7 LAI IE? y                       Ds1 Echo Cancellation? n

    Apply Local Ringback? n
 Show ANSWERED BY on Display? y
                         Network (Japan) Needs Connect Before Disconnect? n
```

Figure 24: Trunk-Group Form, Page 3

```
add trunk-group 52                                          Page   4 of  21
                   QSIG TRUNK GROUP OPTIONS



   TSC Method for Auto Callback: drop-if-possible
          Diversion by Reroute? y
             Path Replacement? y
Path Replacement with Retention? n
       Path Replacement Method: better-route
                          SBS? n
 Display Forwarding Party Name? y
   Character Set for QSIG Name: eurofont
             QSIG Value-Added? y
               Encoding Method: proprietary
```

Figure 25: Trunk-Group Form, Page 4

```
add trunk-group 52                                              Page   5 of   21
                                TRUNK GROUP
                                 Administered Members (min/max):   1/2
GROUP MEMBER ASSIGNMENTS             Total Administered Members:   2

      Port    Code Sfx Name        Night          Sig Grp
 1: 001V201   MM720
 2: 001V217   MM720
 3:
 4:
 5:
 6:
 7:
 8:
 9:
10:
11:
12:
13:
14:
15:
```

Figure 26: Trunk-Group Form for BRI Interface, Page 5

3.1.6. Configure Public-Unknown-Numbering Format

Use the **change public-unknown-numbering** command to designate how telephone numbers
are to be displayed on stations which have displays. Specify that seven digit numbers starting
with "3" for trunks "2" and "52" should not be modified.

```
change public-unknown-numbering 7                              Page   1 of   2
                    NUMBERING - PUBLIC/UNKNOWN FORMAT
                                            Total
Ext Ext            Trk        CPN          CPN
Len Code           Grp(s)     Prefix       Len
                                                  Total Administered: 2
 7   3              2                       7        Maximum Entries: 240
 7   3              52                      7
```

Figure 27: Public-Unknown-Numbering Form

3.1.7. Configure Telephone Stations

Use the **add station** command to configure all of the telephones shown in Table 2. The settings for Avaya 2400 Telephones are the same as those required for the Avaya 4621 phone, except that the "Type" designation must be set to match the telephone type.

Parameter	Usage
Type	Enter the type of station which is to be configured.
Security Code	Enter a numeric security code
Name	Enter a descriptive name for the user of the station.
BUTTON ASSIGNMENTS	Assign "send-calls" and "call-fwd" buttons to the stations, as required to test call coverage and call forwarding with NovaAlert.

Table 9: Station Parameters

```
add station 3000136                                          Page    1 of    5
                                    STATION

Extension: 300-0136                  Lock Messages? n              BCC: 0
        Type: 4621                   Security Code: 6310003         TN: 1
        Port: S00006                 Coverage Path 1:              COR: 1
        Name: extn 3000136           Coverage Path 2:              COS: 1
                                     Hunt-to Station:
STATION OPTIONS
                                       Time of Day Lock Table:
               Loss Group: 19      Personalized Ringing Pattern: 1
                                       Message Lamp Ext: 300-0136
           Speakerphone: 2-way       Mute Button Enabled? y
       Display Language: english       Expansion Module? n
 Survivable GK Node Name:
          Survivable COR: internal      Media Complex Ext:
   Survivable Trunk Dest? y                   IP SoftPhone? n




                                   Customizable Labels? y
```

Figure 28: Add Station Form, Page 1

```
add station 3000136                                          Page    4 of    5
                                    STATION
 SITE DATA
      Room:                                   Headset? n
      Jack:                                   Speaker? n
     Cable:                                   Mounting: d
     Floor:                                Cord Length: 0
  Building:                                  Set Color:

ABBREVIATED DIALING
    List1:                  List2:                   List3:




BUTTON ASSIGNMENTS
 1: call-appr                         5: call-fwd   Ext:
 2: call-appr                         6:
 3: call-appr                         7:
 4: send-calls Ext:                   8:
```

Figure 29: Add Station Form, Page 4

3.1.8. Configure Interface to SES and Integration for SIP Telephones

Use the **change off-pbx-telephone station-mapping** command to configure SIP telephones.
Assign values for this command as shown in the following table.

Parameter	Usage
Station Extension	Enter the extension of the SIP phone.
Application	Enter "OPS".
Phone Number	Enter the phone number assigned to the SIP phone.
Trunk Selection	Enter the number assigned to the SIP trunk in **Section 3.1.8**.
Call Limit	Enter "3" to allow the SIP phone to do call transfers.

Table 10: Parameters for Off-PBX-Telephone Station-Mapping

```
change off-pbx-telephone station-mapping 3000115              Page   1 of   2
                  STATIONS WITH OFF-PBX TELEPHONE INTEGRATION


 Station          Application Dial   CC  Phone Number       Trunk       Config
 Extension                   Prefix                         Selection   Set
 300-0115            OPS        -       3000115               83         1
```

Figure 30: Off-PBX-Telephone Form, page 1

```
change off-pbx-telephone station-mapping 3000115              Page   2 of   2
                  STATIONS WITH OFF-PBX TELEPHONE INTEGRATION

 Station         Call        Mapping      Calls      Bridged
 Extension       Limit       Mode         Allowed    Calls
 300-0115         3       both          all         both
```

Figure 31: Off-PBX-Telephone Form, page 2

Use the **change off-pbx-telephone feature-name-extension** command to assign extensions to features required by SIP telephones, as shown in the following table below. Note that the extensions used here are assigned to speed dial entries for SIP phones, as shown in **Table 17**.

Parameter	Usage
Call Forward All	Assign an unused extension within the local dial plan to the "Call Forward All" feature.
Call Forward Cancel	Assign an unused extension within the local dial plan to the "Call Forward Cancel" feature.
Send All Calls	Assign an unused extension within the local dial plan to the "Send All Calls" feature.
Send All Calls Cancel	Assign an unused extension within the local dial plan to the "Send All Calls Cancel" feature.

Table 11: Parameters for Off-PBX-Telephone Feature-Name-Extension

```
change off-pbx-telephone feature-name-extensions              Page   1 of   2
     EXTENSIONS TO CALL WHICH ACTIVATE FEATURES BY NAME


    Active Appearance Select:
         Automatic Call Back:
 Automatic Call-Back Cancel:
            Call Forward All: 300-1804
 Call Forward Busy/No Answer: 300-1805
         Call Forward Cancel: 300-1806
                   Call Park:
        Call Park Answer Back:
                Call Pick-Up:
        Calling Number Block:
      Calling Number Unblock:
         Conference on Answer:
          Directed Call Pick-Up:
        Drop Last Added Party:
     Exclusion (Toggle On/Off):
    Extended Group Call Pickup:
        Held Appearance Select:
```

Figure 32: Off-PBX-Telephone Form, page 2

```
change off-pbx-telephone feature-name-extensions              Page   2 of   2
     EXTENSIONS TO CALL WHICH ACTIVATE FEATURES BY NAME


        Idle Appearance Select:
          Last Number Dialed:
          Malicious Call Trace:
 Malicious Call Trace Cancel:
            Off-Pbx Call Enable:
           Off-Pbx Call Disable:
                 Priority Call:
              Send All Calls: 300-1825
        Send All Calls Cancel: 300-1826
            Transfer On Hang-Up:
         Transfer to Voice Mail:
        Whisper Page Activation:
```

Figure 33: Off-PBX-Telephone Form, page 2

Use the **change feature-access-codes** command to assign feature codes required by SIP phones, as shown in the following table:

Parameter	Usage
Call Forwarding Activation Busy/DA and Deactivation	Assign unused feature access codes which are within the local dial plan to activate/deactivate call forwarding.
Send All Calls Activation and Deactivation	Assign unused feature access codes which are within the local dial plan to activate/deactivate call sending all calls to coverage.

Table 12: Parameters for Off-PBX-Telephone Feature-Name-Extension

```
change feature-access-codes                              Page   1 of   5
                          FEATURE ACCESS CODE (FAC)
          Abbreviated Dialing List1 Access Code:
          Abbreviated Dialing List2 Access Code:
          Abbreviated Dialing List3 Access Code:
Abbreviated Dial - Prgm Group List Access Code:
                   Announcement Access Code:
                   Answer Back Access Code:
                     Attendant Access Code:
      Auto Alternate Routing (AAR) Access Code:
      Auto Route Selection (ARS) - Access Code 1:      Access Code 2:
                Automatic Callback Activation:          Deactivation:
Call Forwarding Activation Busy/DA: *75    All: *73    Deactivation: *74
   Call Forwarding Enhanced Status:        Act:         Deactivation:
                         Call Park Access Code:
                       Call Pickup Access Code:
CAS Remote Hold/Answer Hold-Unhold Access Code:
               CDR Account Code Access Code:
                    Change COR Access Code:
               Change Coverage Access Code:
                 Contact Closure   Open Code:         Close Code:
```

Figure 34: Off-PBX-Telephone Form, page 2

```
change feature-access-codes                              Page   3 of   5
                          FEATURE ACCESS CODE (FAC)
           Leave Word Calling Send A Message:
           Leave Word Calling Cancel A Message:
  Limit Number of Concurrent Calls Activation:        Deactivation:
            Malicious Call Trace Activation:          Deactivation:
        Meet-me Conference Access Code Change:

 PASTE (Display PBX data on Phone) Access Code:
  Personal Station Access (PSA) Associate Code:        Dissociate Code:
         Per Call CPN Blocking Code Access Code:
       Per Call CPN Unblocking Code Access Code:

                 Priority Calling Access Code:
                       Program Access Code:

    Refresh Terminal Parameters Access Code:
            Remote Send All Calls Activation:          Deactivation:
            Self Station Display Activation:
                Send All Calls Activation: *71    Deactivation: *72
       Station Firmware Download Access Code:
```

Figure 35: Off-PBX-Telephone Form, page 2

Use the **change ip-network-region** command to configure the network region used by SES. Assign values for this command as shown in the following table.

Parameter	Usage	
Authoritative Domain	Enter the name assigned to SES in	**Figure 48**.
Name	Enter a descriptive name.	

Table 13: Parameters for IP-Network-Region 1

```
change ip-network-region 1                                      Page   1 of  19
                            IP NETWORK REGION
  Region: 1
Location: 1          Authoritative Domain: ffm.com
    Name: FFM
MEDIA PARAMETERS                  Intra-region IP-IP Direct Audio: yes
      Codec Set: 1                Inter-region IP-IP Direct Audio: yes
  UDP Port Min: 2048                      IP Audio Hairpinning? y
  UDP Port Max: 3329
DIFFSERV/TOS PARAMETERS                    RTCP Reporting Enabled? y
 Call Control PHB Value: 46      RTCP MONITOR SERVER PARAMETERS
       Audio PHB Value: 46        Use Default Server Parameters? y
       Video PHB Value: 26
802.1P/Q PARAMETERS
 Call Control 802.1p Priority: 6
       Audio 802.1p Priority: 6
       Video 802.1p Priority: 5     AUDIO RESOURCE RESERVATION PARAMETERS
H.323 IP ENDPOINTS                                 RSVP Enabled? n
  H.323 Link Bounce Recovery? y
 Idle Traffic Interval (sec): 20
   Keep-Alive Interval (sec): 5
           Keep-Alive Count: 5
```

Figure 36: IP-Network-Region Form

Use the **change ip-codec-set** command to specify the codec to be used for Network Region assigned to SES. Specify that the G.711 codec is to be used.

```
change ip-codec-set 1                                           Page   1 of   2

                        IP Codec Set

    Codec Set: 1

    Audio          Silence     Frames    Packet
    Codec          Suppression Per Pkt  Size(ms)
 1: G.711A             n          2         20
 2:
 3:
 4:
 5:
 6:
 7:
```

Figure 37: IP-Codec-Set Form

Use the **add signaling-group** command to configure the Signaling Group parameters for the SIP trunk group. Assign values for this command as shown in the following table.

Parameter	Usage
Group Type	Enter the Group Type as "sip".
Far-end Node Name	Enter node name assigned to the SES in **Figure 7.**
Far-end Domain	Enter the domain name configured for SES in **Figure 7**.

Table 14: Signaling-Group Parameters for SIP Interface

```
add signaling-group 83                                          Page   1 of   1
                            SIGNALING GROUP

 Group Number: 83                    Group Type: sip
                        Transport Method: tls




   Near-end Node Name: procr                      Far-end Node Name: ses
Near-end Listen Port: 5061                   Far-end Listen Port: 5061
                                            Far-end Network Region:
      Far-end Domain: ffm.com


                                            Bypass If IP Threshold Exceeded? n

        DTMF over IP: rtp-payload            Direct IP-IP Audio Connections? y
                                                    IP Audio Hairpinning? y
Enable Layer 3 Test? n
Session Establishment Timer(min): 3
```

Figure 38: SES Signaling-Group Form

Use the **add trunk-group** command to configure the MM720 interface card to serve as a primary rate interface. Assign values for this command as shown in the following table.

Parameter	Usage
Group Type	Specify the Group Type as "sip"
Group Name	Select an appropriate name to identify the device.
TAC	Specify a trunk access code which can be used to provide dial access to the trunk.
Service Type	Designate the trunk as a "tie" line to a peer system.
Signaling Group	Enter the number assigned to the SIP signaling group show in **Figure 38**.
Number of Members	Specify sufficient number of members to support the maximum simultaneous connections required.

Table 15: Trunk-Group Parameters for the SIP Interface

```
add trunk-group 83                                        Page   1 of  21
                           TRUNK GROUP

Group Number: 83                    Group Type: sip        CDR Reports: y
  Group Name: SIP                        COR: 1      TN: 1       TAC: *83
   Direction: two-way      Outgoing Display? n
 Dial Access? n                                   Night Service:
Queue Length: 0
Service Type: tie                    Auth Code? n


                                            Signaling Group: 83
                                          Number of Members: 5
```

Figure 39: Trunk-Group Screen Form

3.2. Configure Avaya IP Telephones

Configure **46xxsettings.txt** text file to be used by Avaya IP Telephones. The parameters that are required to be configured in this file are shown in the following table. This is a "flat" ASCII file which must reside in the directory of the TFTP server accessible by the Avaya IP Telephones. Avaya IP Telephones must be configured so that the "FileSv" parameter is set to the address of the TFTP server that contains this configuration file, which is re-read each time the phone is restarted.

Parameter	Usage
MWISRVR	The value "SES_IP_address" indicates that Avaya SIP phones should register with the SES server to receive message waiting events.
SIPDOMAIN	Enter the name of the SIP domain.
ENHDIALSTAT	Set this parameter to "0" to indicate that enhanced dialing is not required.

Table 16: Parameters for Telephone Setting File

```
SET MWISRVR        "SES_IP_address"
SET SIPDOMAIN      "ffm.com"
SET ENHDIALSTAT    0
```

Figure 40: Telephone Settings File Content

In addition to these settings, Avaya SIP Telephones must be configured manually to add speed dial entries to activate/deactivate Call Forwarding and Send All Calls features, by assigning the extensions which were assigned to the features shown in the following table to speed dial entries. These extensions are those which were assigned to using the **Off-Pbx-Telephone Feature-Name-Extensions** command described in Table 11.

Parameter	Extension	Usage
CallFwd On	3001804	Activate Call Forwarding
CallFwd Off	3001806	Deactivate Call Forwarding
SendAll On	3001825	Activate Send All Calls
SendAll Off	3001826	Deactivate Send All Calls

Table 17: Speed Dial Entry Assignments for Avaya SIP Telephones

3.3. Configure SIP Enablement Services

Log in to the SES Web-based Integrated Management tool by selecting the IP address of the SES server followed by "/admin" from the Web browser. After entering the login ID and password, select "Launch Administration Web Interface".
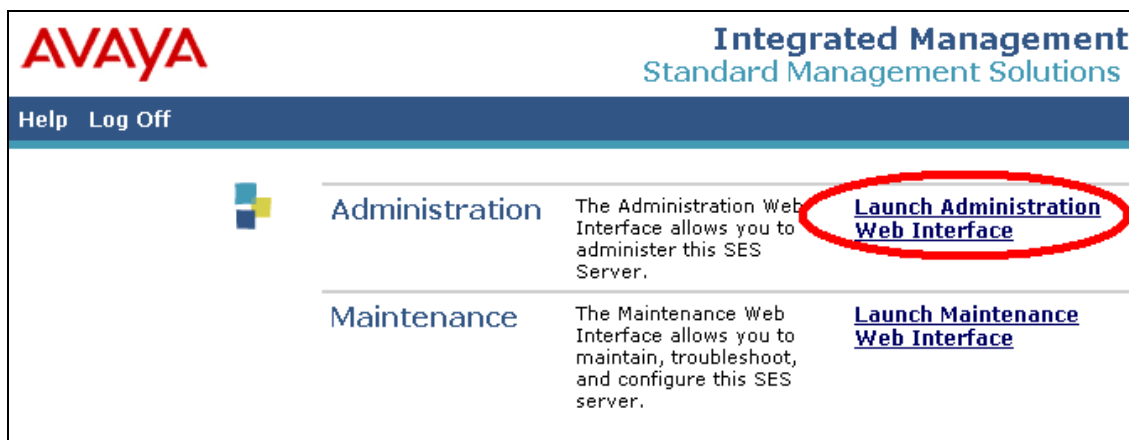
Figure 41: SES Initial Greeting Screen

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From the top-level management screen, click "Manage Hosts" followed by "Add Host".
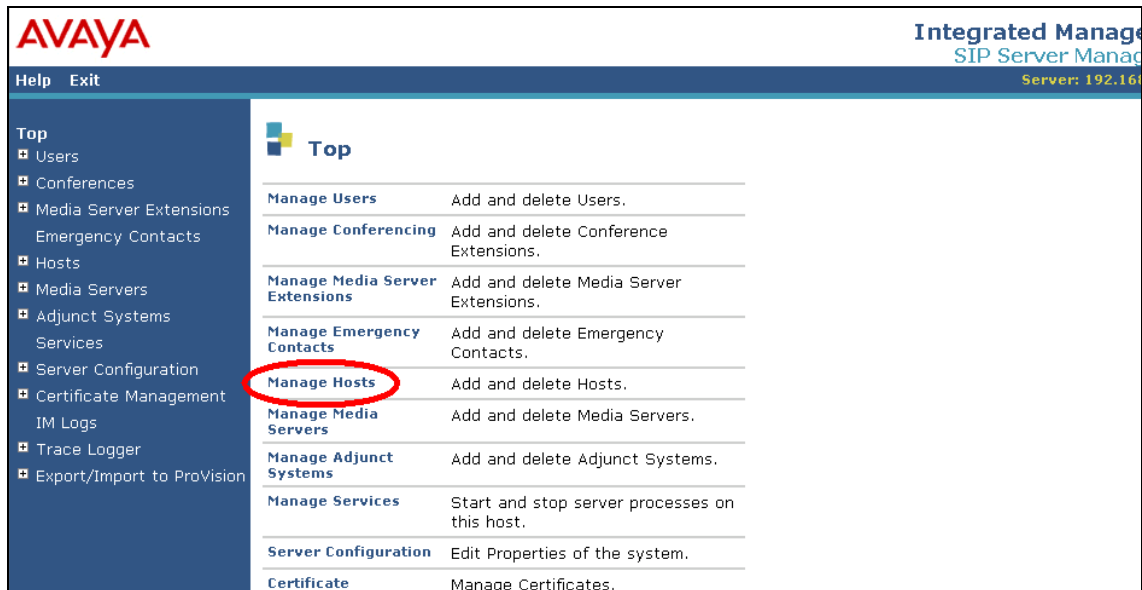
Figure 42: Host Management Selection from Top-Level Administration Screen

Enter the IP address of the SES Server, a database password, and a Profile Service Password which were allocated to the SES server when it was installed. Leave the other field assigned to their respective default values. Select the "Update" button.

Figure 43: SES "Add Host" Screen

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From the top-level management screen, select "Manage Media Servers".

Figure 44: Media Server Management Selection from Top-Level Administration Screen

Assign a meaningful name to the "Media Server Interface Name". Select the IP address of the SES server as the "Host". Enter the address of the Avaya S8300 Media Server as the SIP Trunk IP Address. Select the "Add" button when these parameters have been entered.

Figure 45: SES Add Media Server Interface Screen

From the top-level management screen, select "Server Configuration".

Figure 46: Server Configuration Selection from Top-Level Administration Screen

From the Server Configuration screen, select "System Properties".
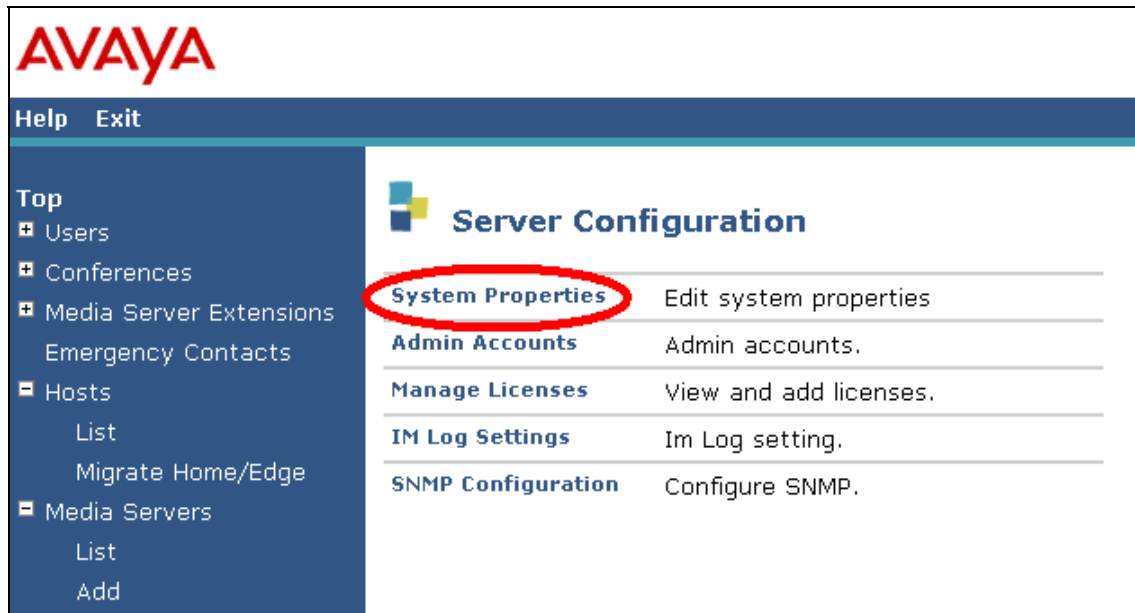
Figure 47: System Properties Selection from Server Configuration Screen

Enter the name to be assigned to the "SIP Domain". This must be the same name as is assigned in **Figure 36** and **Figure 38**. Select the "Update" button.

Figure 48: SES Edit System Properties Screen

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From the top-level management screen, select "Manage Users".

Figure 49: User Management Selection from Top-Level Administration Screen

Select "Add User".

Figure 50: SES User Administration Screen

Enter the extension of the user to be added as the "Primary Handle". This is the same extension that was configured in **Section 3.1.8**. Enter a password and first/last name of the user, check the "Add Media Server Extension" box, and click "Add".

Figure 51: SES "Add User" Screen

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Enter the Media Server Extension for the User ID 3000115 and enter the extension of the SIP telephone. Select the Media Server from and drop down box and click "Add" to continue.

Figure 52: SES Add Media Server Extension Screen

3.4. Configure NovaAlert

3.4.1. Configuration file NovaAlert.ini

The NovaAlert.ini configuration file is a "flat" ASCII file which can be edited with a text editor. This file is contained in the main installation directory on the NovaAlert server (e.g. C:\Program Files\NovaAlert).

The "CardDriver" value must be set to 2 for CAPI cards.
The "Interface" value should be 2 for PRI and 3 for BRI.

The "DefaultCallingParty" and "TelNrLinie" number should be configured to lie within the dialing plan and be chosen such that calls originating from Avaya Communication Manager are routed to the trunk used to connect to NovaAlert.

For PRI testing a value of "2000000" was used, and for BRI testing a value of "5200000".

The other parameters in this file should be configured as shown.

```
[CallInfo]
CardDriver=2
Interface=2
GewählteNummer=1
MinDigits=0
AufschaltenAktiv=0
CallingPartyAktiv=1
DefaultCallingParty=2000000
DefaultLocalName=NovaAlert
CNIPAktiv=1
QSIGStandard=2

[Watchdog]
TelNrLinie=2000000
```

Figure 53: NovaAlert.ini Configuration File Content

3.4.2. Configure Interface to Avaya Communication Manager

Use the Windows "Start" button to select the program Primux ISDN / CAPI Configuration. If the BRI interface is used, the "PrimuX 450 II" icon should be selected. If the PRI interface is used, the "PrimuX 1S2M II" icon should be selected.

3.4.2.1 Configure PRI Interface

Set the parameters in the "General" tab as show in the following table.

Parameter	Usage
Switch Type	Specify "PBX, Q.SIG"
Interface Type	Specify "Point-to-Point (experimental)"
Inbound calls	Specify "No Phone Numbers"

Table 18: ISDN PRI Interface General Configuration Parameters
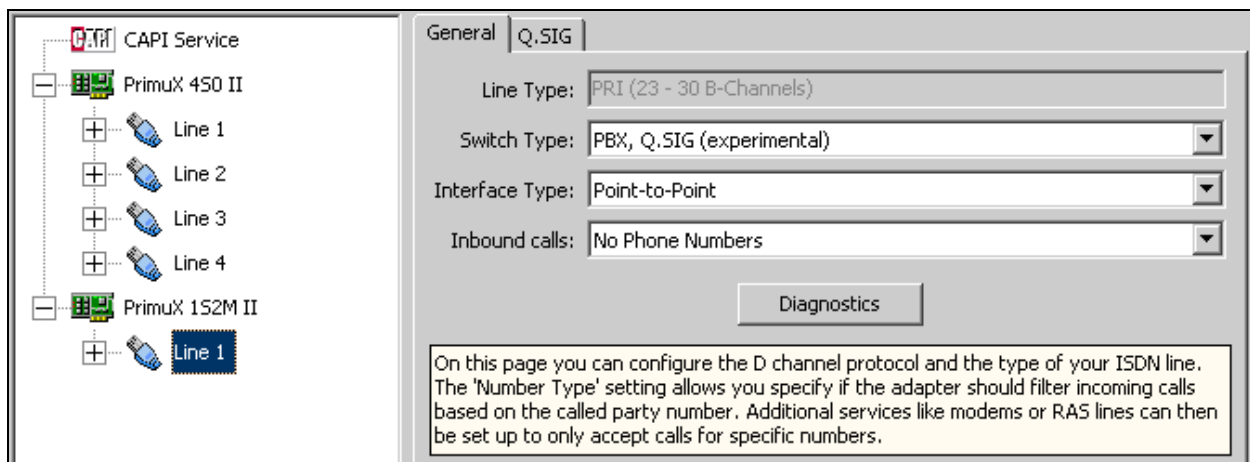
Figure 54: ISDN PRI Interface General Configuration Settings

Configure the parameters in the "Q.SIG" tab as shown in the following table.

Parameter	Usage
PBX type	Specify "Universal"
Q.SIG Standard	Specify "Automatic"
Length of CR Value	Specify "Default"
Length of Channel Info IE	Specify "Continuous Number"
Call Transfer Mode	Specify "Automatic"
Disconnect on PROGRESS	Specify "Off"
Process Interpretation APDU	Specify "Off"

Table 19: ISDN PRI Interface Q.SIG Configuration Parameters
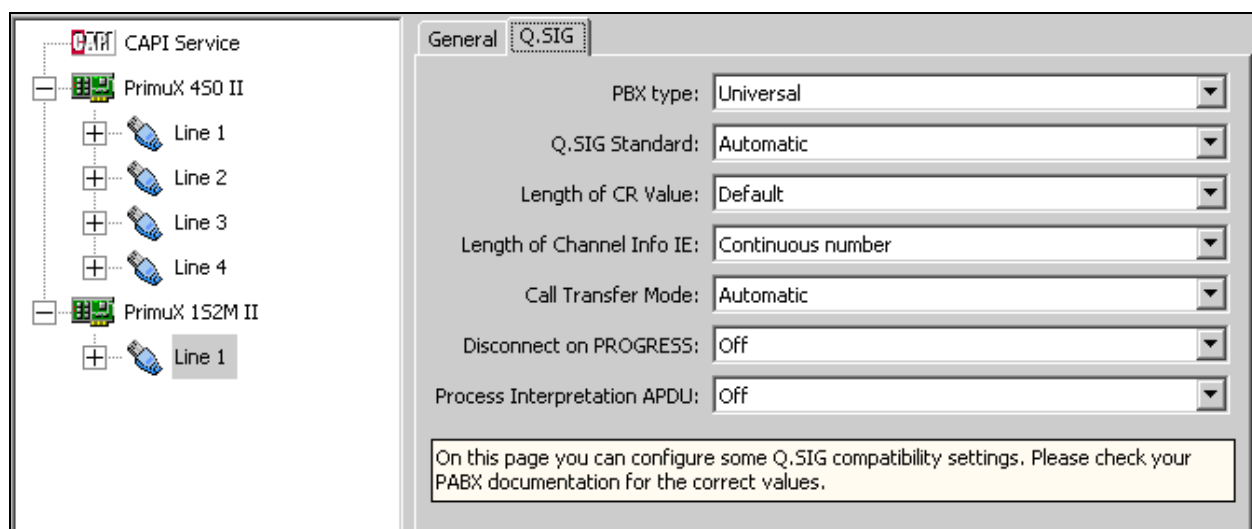
Figure 55: ISDN PRI Interface Q.SIG Configuration Settings

3.4.2.2 Configure BRI Interface

Set the parameters in the "General" tab as show in the following table.

Parameter	Usage
Switch Type	Specify "PBX, Q.SIG (experimental)"
Interface Type	Specify "Point-to-Point"
Inbound calls	Specify "No Phone Numbers"

Table 20: ISDN BRI Interface General Configuration Parameters
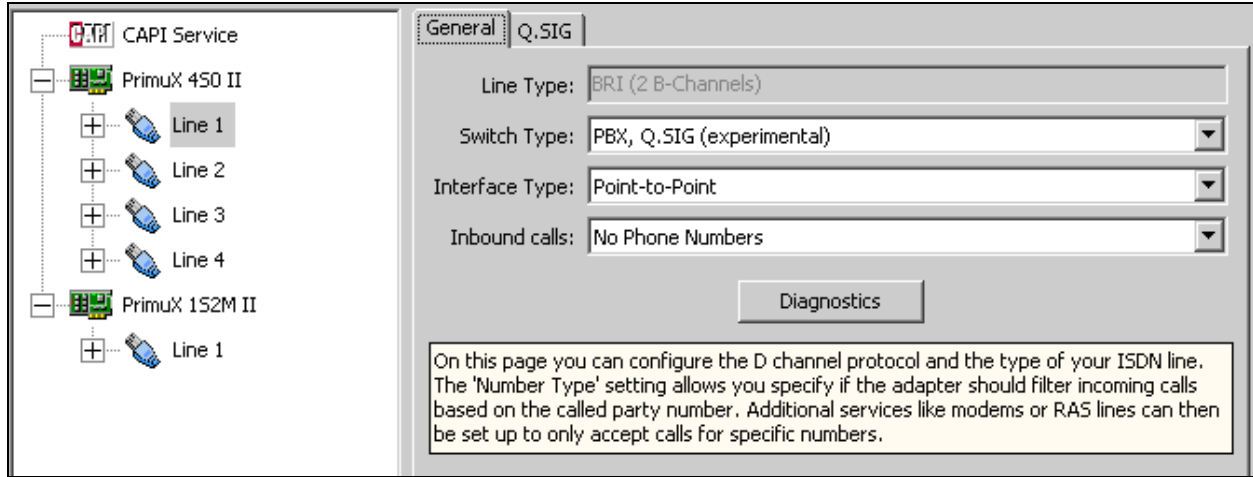
Figure 56: ISDN BRI Interface General Configuration Settings

Configure the parameters in the Q.SIG tab as shown in the following table.

Parameter	Usage
PBX type	Specify "Universal"
Q.SIG Standard	Specify "Automatic"
Length of CR Value	Specify "Default"
Length of Channel Info IE	Specify "Continuous Number"
Call transfer mode	Specify "Automatic"
Disconnect on PROGRESS	Specify "Off"
Process Interpretation APDU	Specify "Off"

Table 21: ISDN BRI Interface Q.SIG Configuration Parameters
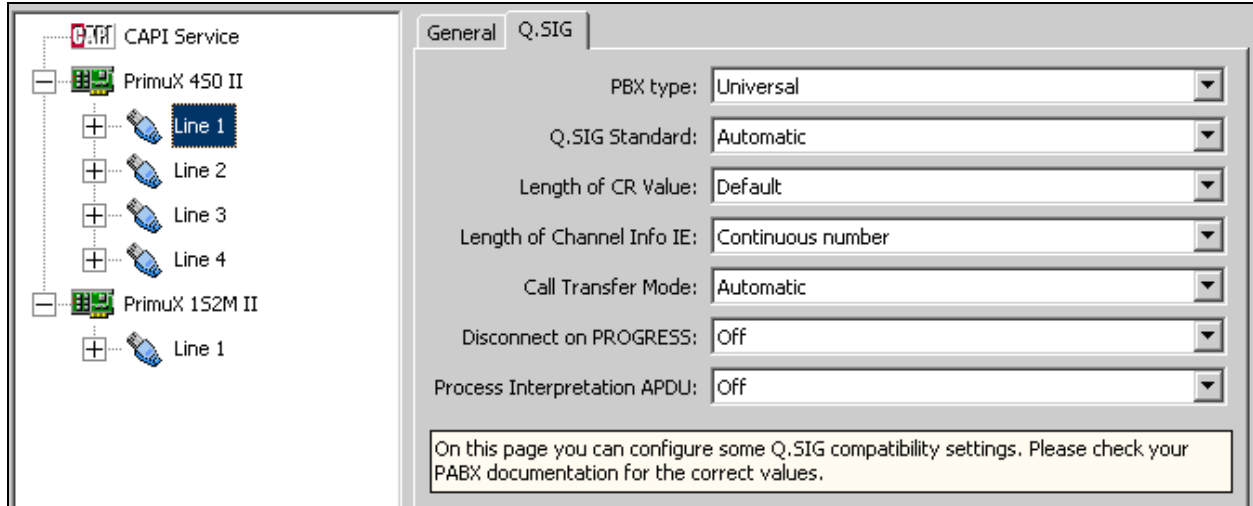
Figure 57: ISDN BRI Interface Q.SIG Configuration Settings

3.4.3. Configure Users

Use the Windows "Start" button to select the program NovaAlert, and select the "User master data" icon from the left frame.
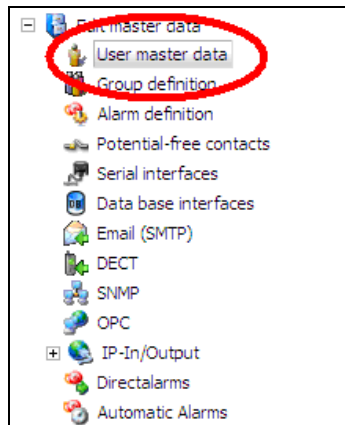
**Figure 58: User Master Data Configuration Selection
from NovaAlert Top-Level Screen**

When the "Person definitions" screen appears, click the "New person" button.
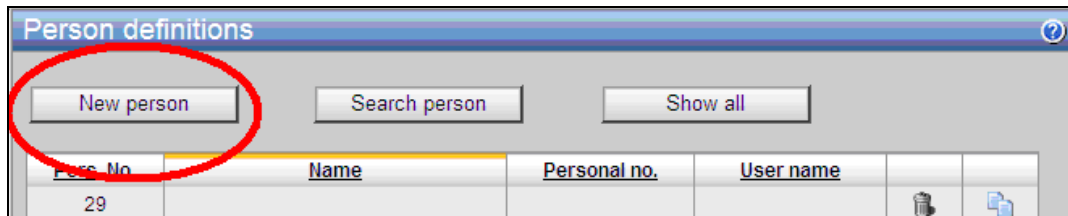
Figure 59: New Person Selection from NovaAlert User Screen

In the "Personal details" tab, enter the name and a PIN code to be assigned to the user. This PIN code will be used by the user when an authorization sequence is required.

Figure 60: NovaAlert Edit Personal Details Screen
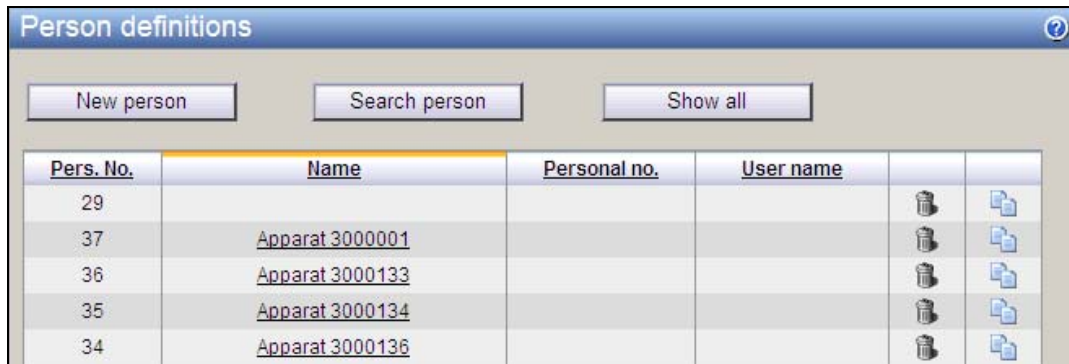
Select the "Telephone numbers" tab, enter the telephone number to be assigned to the user, and click the "Save changes" button.

Figure 61: NovaAlert Edit Personal Telephone Numbers Screen

Repeat this for the other extensions which are used for testing.

The newly configured users are now listed in the "Person definitions" screen.

Figure 62: NovaAlert Personal User Display Screen

3.4.4. Configure Alarms

Use the Windows "Start" button to select the "Alarm definition" icon from the left frame.
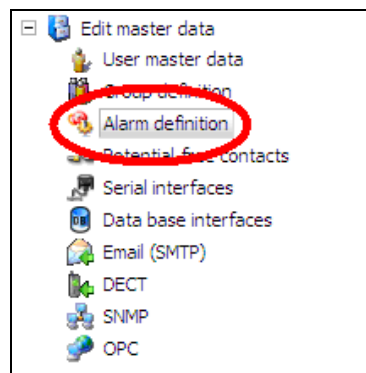
**Figure 63: Alarm Definition Configuration Selection
from NovaAlert Top-Level Screen**

When the "Alarm definition" screen appears, click the "New Alarm" button.
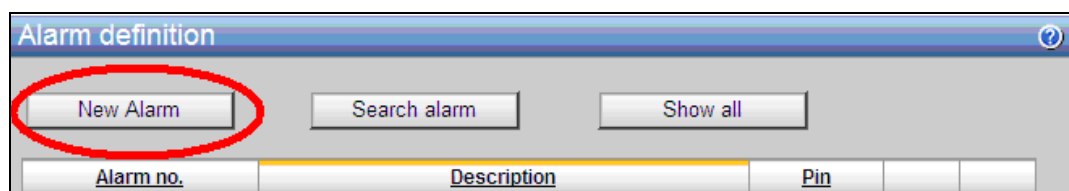
Figure 64: NovaAlert New Alarm Selection Screen

Configure the "General" alarm definition tab with the information shown in the following table.

Parameter	Usage
Description	Enter a name to be assigned to the alarm.
Pin code for trigger	Enter the PIN code to be used for alarm recipient verification
Priority	Select "Höchste Priorität" (highest priority) from the drop-down box.
Group call	Select "Group Call" from the drop-down box.
Nbr. Of pers. To be contac	Select "Alle" (all) from the drop-down box.
Based on person	Check this box.
Display on reports	Check this box.
Select contact group	Select the "Compile individual alert list" radio button.

Table 22: NovaAlert General Alarm Configuration Parameters

Figure 65: NovaAlert New Alarm Definition Screen

Configure the "Messages" alarm definition tab with the information shown in the following table and click the "Save changes" button.

Parameter	Column	Usage
Phone display	Alarm messages	Enter the text message which is to be shown on the Avaya telephone display. The length of this message should not exceed the maximum calling party name text length which can be displayed by Avaya telephones, which is 15 characters for telephones used for these tests.
	Event text	Select "Yes" from the drop-down box.
	Call type	Select "Dauer" from the drop-down box.
	copy	Select this check box.
Phone TTS		Select the check box which is positioned to the left of the "Alarm messages" text box.
	Alarm messages	Enter the text message which is converted to speech and announced to the party receiving the alarm.
	Event text	Select "Yes" from the drop-down box.

<p align="center">**Table 23: NovaAlert Alarm Messages Configuration Parameters**</p>

<p align="center">**Figure 66: NovaAlert Alarm Message Definition Screen**</p>
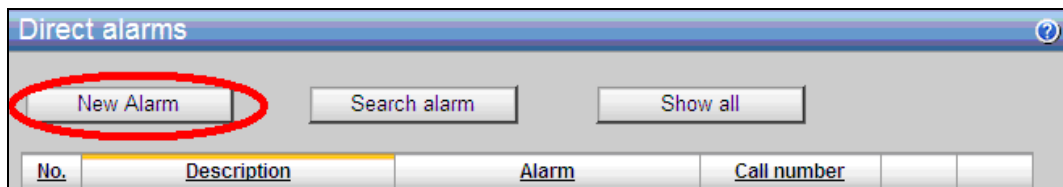
3.4.5. Configure Direct Alarms

The Direct Alarm function maps a specific Called Party Number to an alarm, so that when this number is dialed (e.g. 5211111), the caller records a message (optional) and the alarm is triggered. The recorded message is played on the alarmed stations.

Use the Windows "Start" button to select the "Directalarms" icon from the left frame.
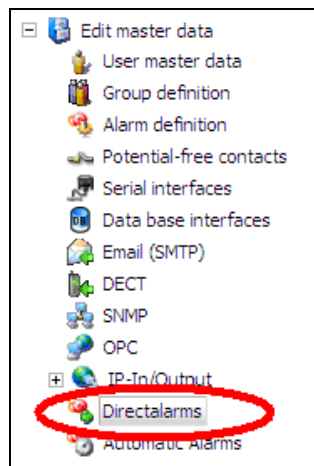
**Figure 67: Direct Alarm Configuration Selection
from NovaAlert Top-Level Screen**

When the "Direct alarm" screen appears, click the "New Alarm" button.

Figure 68: NovaAlert New Direct Alarm Selection Screen

Configure the "General" alarm definition tab with the information shown in the following table, and click the "Save changes" button.

Parameter	Usage
Description	Enter a name to be assigned to the alarm.
Initiating call number	Enter the telephone number which is to be used by NovaAlert to make the alarm call. For PRI testing a number of 2111111 was used, and for BRI testing a number of 5211111.
PIN Code	Enter a PIN code that needs to get input to trigger the alarm. Leave empty if none is required.
Alarm no.	Select one of the previously configured alarms from the drop-down box.
Alarm text	Input an alarm text to display on the alarmed stations (as Calling Party Name). Leave empty for the default alarm text.
Recording	Check this box to allow the recording of an alarm message per call.
Min. recording time	Enter the minimum recording time, in seconds.

Table 24: NovaAlert General Direct Alarm Configuration Parameters

Figure 69: NovaAlert Direct Alarm Configuration Screen

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4. Interoperability Compliance Testing

The interoperability compliance tests included feature and serviceability testing.

The feature testing focused on testing scenarios that involve interaction between the NovaLink server and Avaya products, including various sequences involving the following:

- Verification of the correct delivery of alarm voice messages
- Verification of the correct display of alarm text messages
- Verification of the ability of NovaAlert to recognize DTMF tones.
- Verification of the ability of NovaAlert to receive overlap number transmission.
- Verification of the ability of Avaya telephones to correctly log unanswered alarms.

The serviceability testing focused on verifying that the NovaLink product components can recover from interruption to interface connections which can occur during routine maintenance activities. Each of these units was also tested for recovery from unexpected power interruption.

4.1. General Test Approach

The test method employed can be described as follows:
- The individual features of the NovaAlert were tested by manually generating alarms from the NovaAlert console and manually making calls from Avaya telephones.
- NovaLink NovaAlert robustness was tested by verifying its ability to recover from interruptions to its external connections including:
  - o The LAN connection between the NovaAlert and the network
  - o The BRI connection between NovaAlert and the Avaya G350 Media Gateway
  - o The PRI connection between NovaAlert and the Avaya G350 Media Gateway
- NovaAlert robustness was further tested by verifying the ability to recover from power interruptions to the NovaAlert server.

All testing was performed manually. The tests were all functional in nature, and no performance testing was done.

4.2. Test Results

The following was observed during testing:
- It is not possible to interrupt existing calls to deliver alarm messages, as Avaya Communication Manager does not support this capability over trunks.
- It is not possible for NovaAlert to detect that an Avaya 4600 Series H.323 phone is disconnected, as this status is not reported to the caller by Avaya Communication Manager.

5. Verification Steps

The following steps can be performed to verify the basic operation of the various system components:

- Verify that Avaya Communication Manager and the NovaAlert server can ping each other. The "ping" command can be executed from the NovaAlert server by executing the "cmd" component via the run facility from the Windows "Start" control and entering "ping" followed by the IP address to which the ping message is to be sent. The "ping" command can be executed from Avaya Communication Manager via an ssh login session.
- Verify that the Avaya IP Telephones can call each other.
- If TN2464CP is used for the PRI interface, verify that the switches on these components are set "32 channel", "120 ohm" by removing this component from the G650 cabinet and verifying that the settings of the dip switches are set to "32 channel" and "120 ohm".
- From the Avaya Communication Manager SAT terminal, use the "status trunk" command to verify that the ports for the trunk connected to NovaAlert are in the "in-service/idle" state.
- Verify that each of the Avaya Telephones can call the extension allocated to NovaAlert.
- Verify that it is possible to call each of the Avaya IP Telephones from the NovaAlert console program.
- Verify that it is possible to navigate the NovaAlert voice menu from each of the Avaya Telephones by calling the NovaAlert extension from each of the phones, and entering key sequences in response to prompting requests from NovaAlert.
- Verify the ability of NovaAlert to receive overlap numbers by using Avaya IP Telephones to place a call to NovaAlert via its trunk access code followed by the NovaAlert extension.
- Verify the ability of Avaya IP Telephones to correctly log unanswered calls by placing an unanswered call from NovaAlert to each of the Avaya Telephones, verifying the name and number in the log of the telephone, and subsequently dialing the caller from the telephone log.

6. Support

Technical support from NovaLink can be obtained through the following:

> NovaLink GmbH
> Businesstower
> Zuercherstrasse 310
> 8500 Frauenfeld
> Switzerland
> helpdesk@novalink.ch
> Phone: +41 52 762 66 77
> Fax: +41 52 762 66 99

7. Conclusion

These Application Notes describe the conformance testing of the NovaAlert with Avaya Communication Manager. The various features of the NovaAlert which involve its telephone

interface were tested. A detailed description of the configuration required for both the Avaya and the NovaLink equipment is documented within these Application Notes. NovaAlert passed all of the tests performed, which included both functional and robustness tests.

8. Additional References

[1] *Administrator Guide for Avaya Communication Manager*, February 2007, Issue 3, Document Number 03-300509
[2] *Feature Description and Implementation for Avaya Communication Manager*, February 2007, Issue 5, Document Number 555-245-205
[3] *Installing and Administering SIP Enablement Services*, March 2007, Issue 2.1, Document Number 03-600768
[4] *NovaAlert 7.5 manual*, May 2007