



Avaya Solution & Interoperability Test Lab

Application Notes for Status Solutions SARA with Avaya IP Office – Issue 1.0

Abstract

These Application Notes describe the configuration steps required to integrate Status Solutions SARA with Avaya IP Office. Status Solutions provides innovative situational awareness solutions – including SARA (Situational Awareness and Response Assistant) – for life safety assurance, security monitoring, environmental awareness and mass notification. Dedicated to customer satisfaction, Status Solutions is a growing company with expertise in computer telephony integration and the development and delivery of monitoring and notification tools that mitigate risk. With Status Solutions' unique applications, key individuals, select personnel groups or entire populations can be made aware of any situation, whether emergency or non-emergency, occurring in a single facility or across an entire enterprise.

SARA is an automated alerting system and awareness engine that sends voice alerts via telephone. SARA monitors external equipment at a facility and provides a single point of alarm management for enhanced alerting and reporting. SARA interfaces to Avaya IP Office as a SIP endpoint.

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

1. Introduction

These Application Notes describe the configuration steps required to integrate Status Solutions SARA with Avaya IP Office. Status Solutions provides innovative situational awareness solutions – including SARA (Situational Awareness and Response Assistant) – for life safety assurance, security monitoring, environmental awareness and mass notification. Dedicated to customer satisfaction, Status Solutions is a growing company with expertise in computer telephony integration and the development and delivery of monitoring and notification tools that mitigate risk. With Status Solutions’ unique applications, key individuals, select personnel groups or entire populations can be made aware of any situation, whether emergency or non-emergency, occurring in a single facility or across an entire enterprise.

SARA is an automated alerting system and awareness engine that sends voice alerts via telephone. SARA monitors external equipment at a facility and provides a single point of alarm management for enhanced alerting and reporting. SARA interfaces to Avaya IP Office as a SIP endpoint.

SARA supports various alert call types including alarm alerts, quick messages, and reminders. Refer to [2] for additional information. During the compliance testing, external devices were not connected and monitored by SARA. The focus of the compliance testing was on sending alerts to a telephone using SIP when a simulated alarm was triggered. However, simulated alerts function are processed the same as external device inputs.”

2. General Test Approach and Test Results

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member’s solution.

The feature test cases were performed manually. Various alert types, such as Quick Messages, Alert Calls, and Reminders were sent to an alert device, including local stations and PSTN.

The serviceability test cases were performed manually by disconnecting/reconnecting the Ethernet cable to the SARA server and by rebooting the server.

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing. The feature testing focused on verifying the following functionality on Status Solutions SARA:

- SIP registration with IP Office.
- Quick message calls to local stations and PSTN.
- Reminder calls to local stations and PSTN.
- Alert calls to local stations and PSTN.
- Verification of proper alert call status in reports.
- Verification of alert call retries if a prior alert call was unsuccessful (e.g., no answer) and alert call was not acknowledged by alert device.

The serviceability testing focused on verifying the ability of SARA to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet cable and rebooting the server.

2.2. Test Results

All test cases passed.

2.3. Support

Contact Status Solutions SARA Support Hotline at (866) 846-7272 option 4 for technical support. The Status Solutions website is <http://www.statussolutions.com>.

3. Reference Configuration

In the compliance testing, the Avaya IP Office users have telephone extensions in the range of 600xx and Status Solutions SARA was assigned extensions 61000 and 61001. SARA registered with Avaya IP Office using SIP extensions.

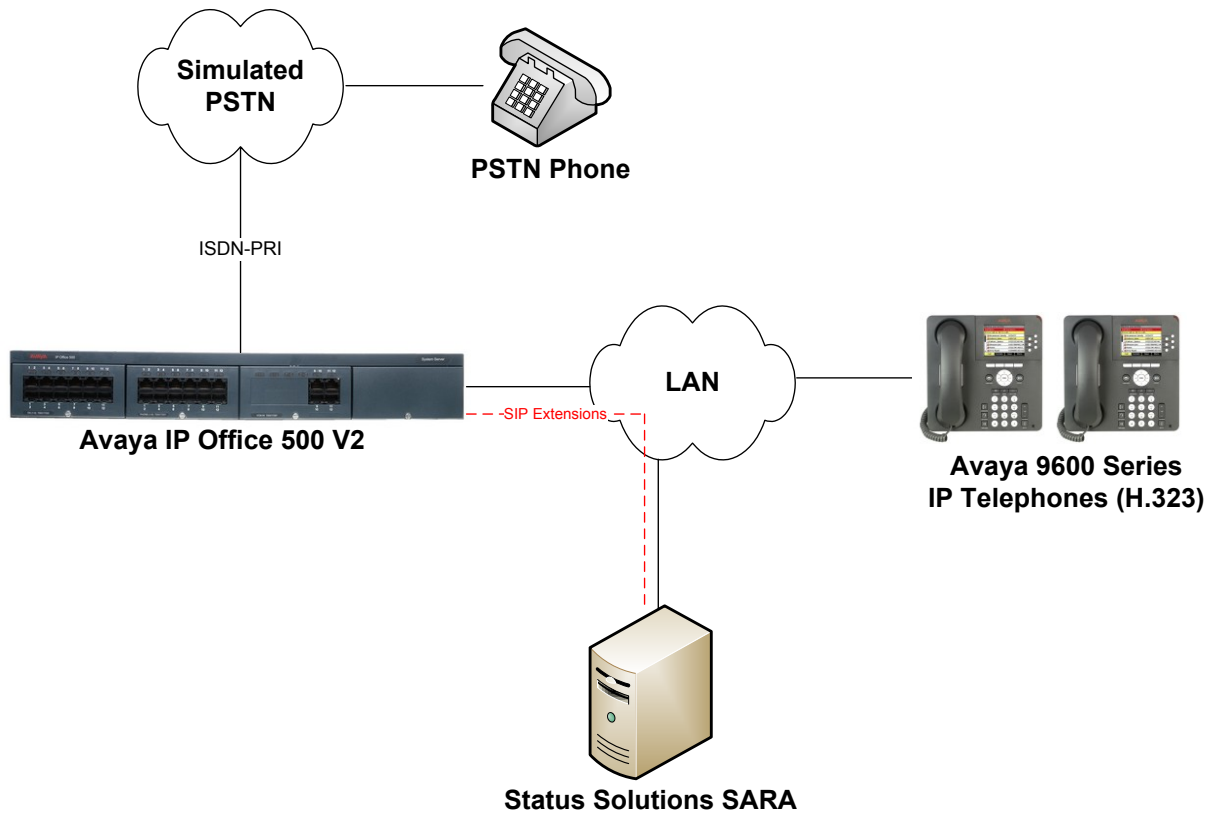


Figure 1: Status Solutions SARA with Avaya IP Office using SIP Registration

4. Equipment and Software Validated

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

Equipment / Software	Release / Version
Avaya IP Office 500 V2	8.0 (16)
Avaya 9600 Series IP Telephones	3.1 SP 2 (H.323)
Status Solutions SARA	4.0 (Build 07:4176M)

5. Configure Avaya IP Office

This section provides the procedures for configuring Avaya IP Office. The procedures include the following areas:

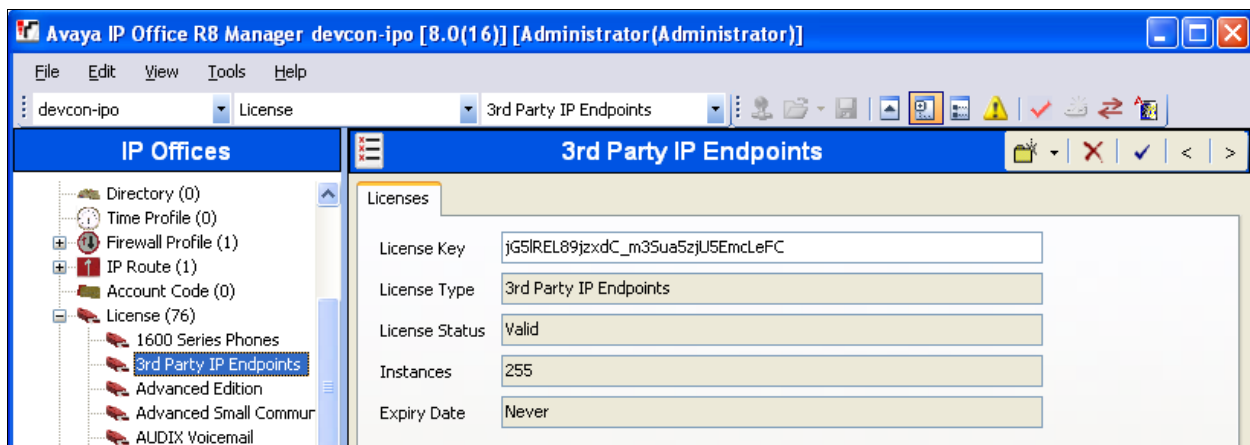
- Verify IP Office license
- Obtain LAN IP address
- Administer SIP registrar
- Administer SIP extension
- Administer SIP user

Note: Call routing to the PSTN is outside the scope of these Application Notes.

5.1. Verify IP Office License

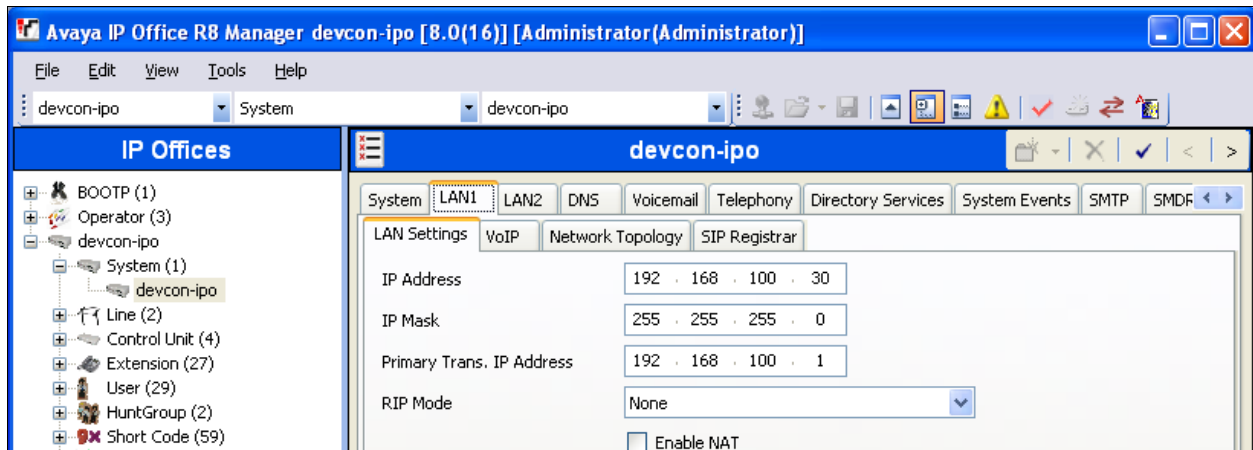
From a PC running the Avaya IP Office Manager application, select **Start → Programs → IP Office → Manager** to launch the Manager application. Select the proper IP Office system and log in with the appropriate credentials.

The **Avaya IP Office R8 Manager** screen is displayed. From the configuration tree in the left pane, select **Licence → 3rd Party IP Channels** to display the license screen in the right pane. Verify that the **Licence Status** is “Valid”.



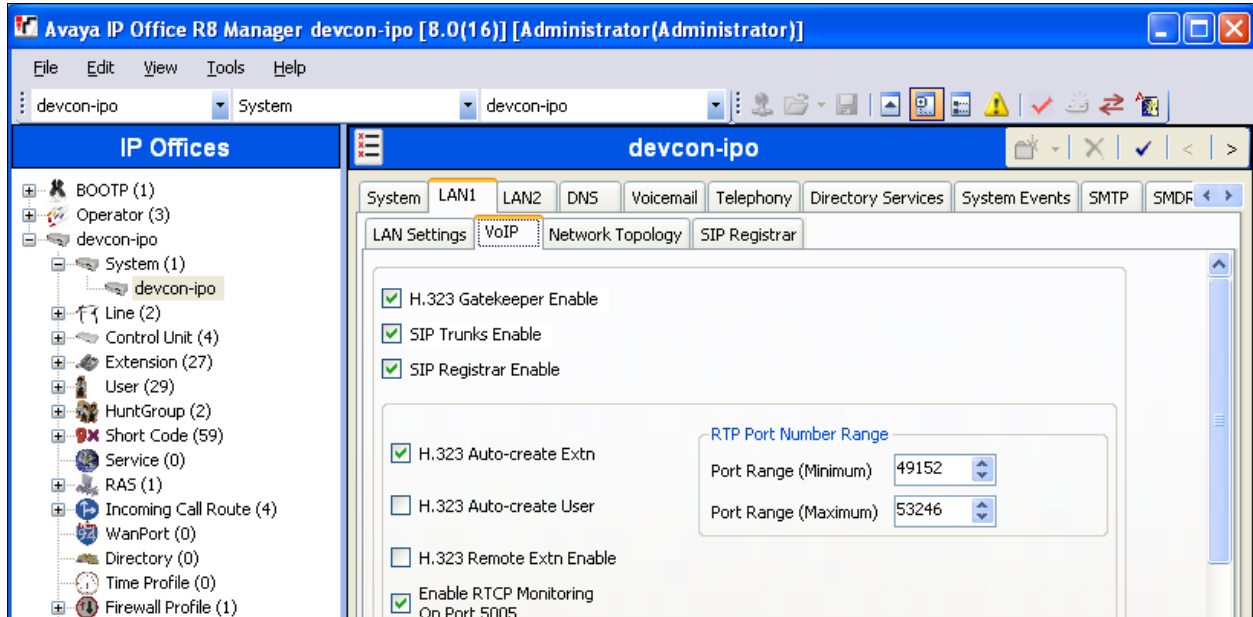
5.2. Obtain LAN IP Address

From the configuration tree in the left pane, select **System** to display the **System** screen for the IP Office 500 V2 in the right pane. Select the **LAN1** tab, followed by the **LAN Settings** sub-tab in the right pane. Make a note of the **IP Address**, which will be used later to configure SARA.

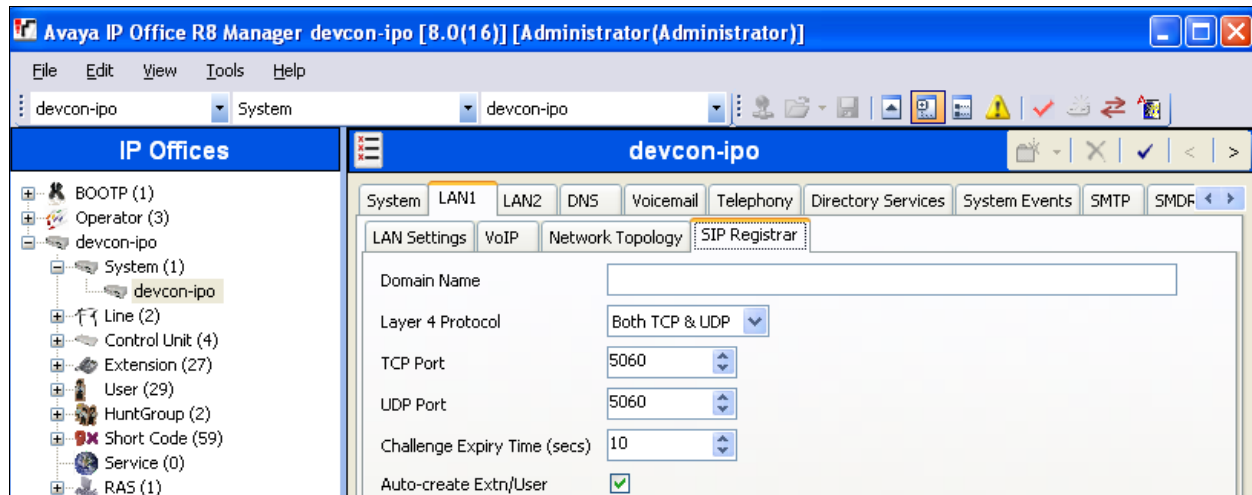


5.3. Administer SIP Registrar

Select the **VoIP** sub-tab. Ensure that **SIP Registrar Enable** is checked as shown below.

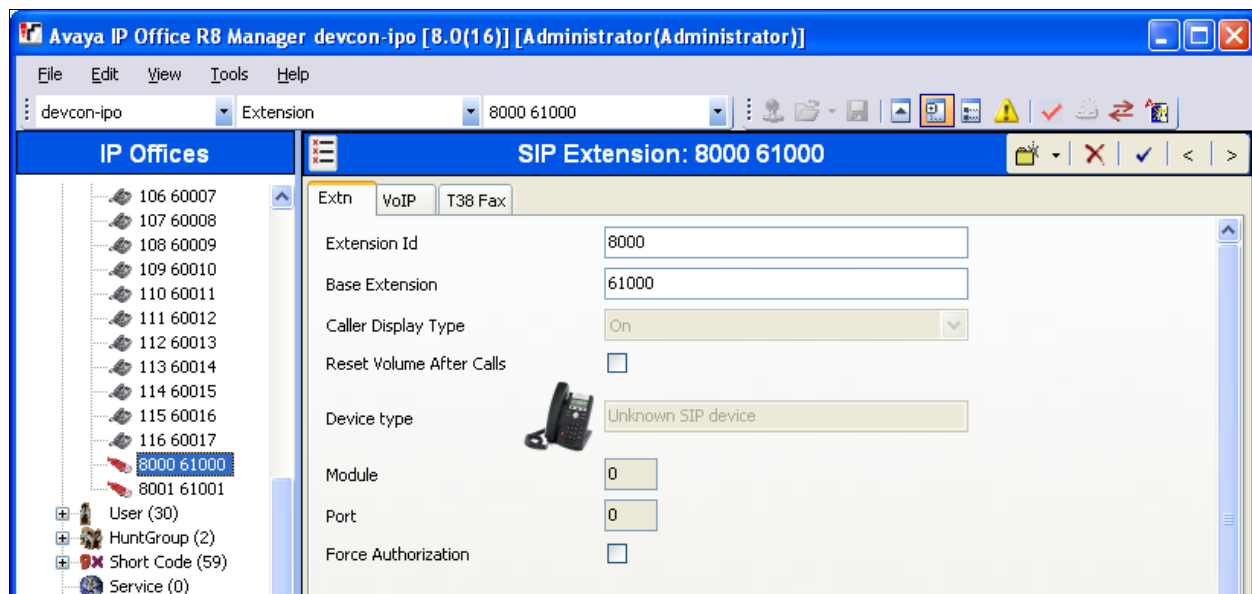


Select the **SIP Registrar** sub-tab and enter a valid **Domain Name**. In the compliance testing, the **Domain Name** field was left blank so the LAN IP address was used.

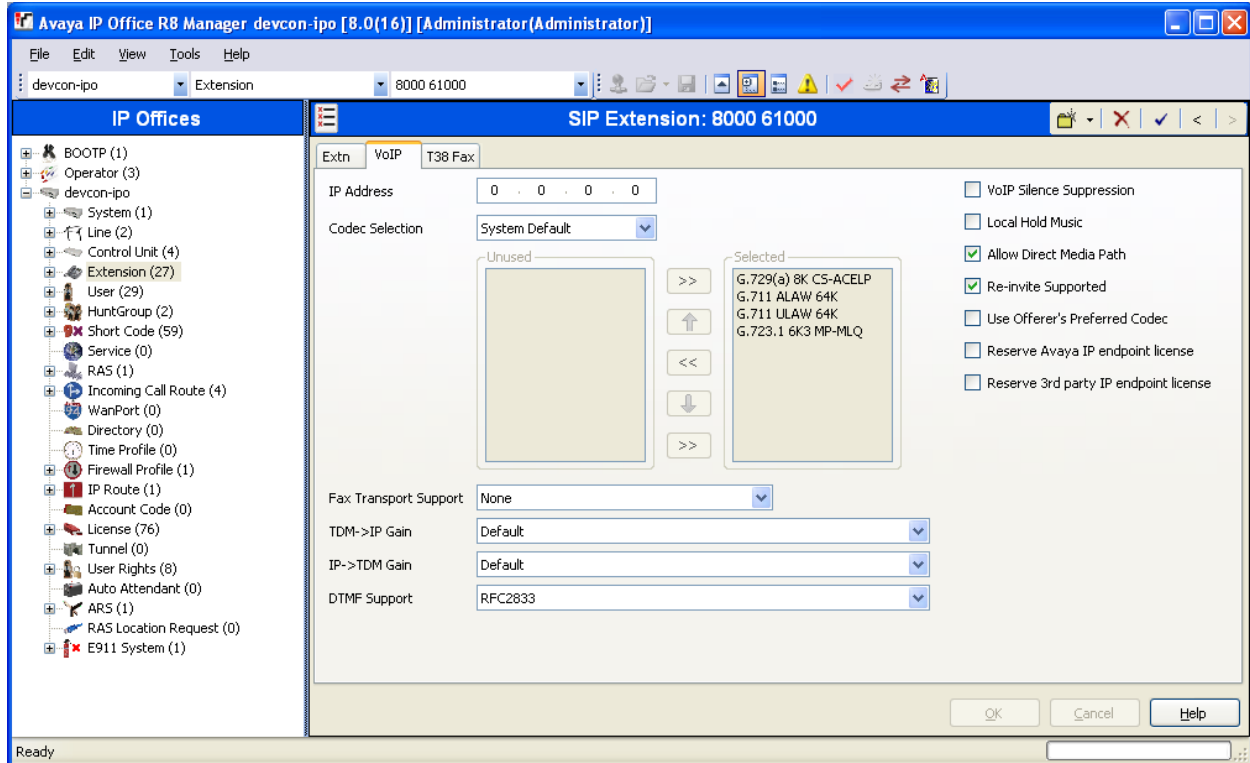


5.4. Administer SIP Extension

From the configuration tree in the left pane, right-click on **Extension** and select **New → SIP** from the pop-up list to add a new SIP extension. Enter the desired extension for the **Base Extension** field. Uncheck the **Force Authorization** field so that SIP authentication is not required when SARA registers with IP Office. Currently, SARA does not support SIP registration with a password. In this example, SARA was assigned extension *61000*.



Select the **VoIP** tab and retain the default values in all fields.



Repeat these steps for additional SARA SIP extensions.

5.5. Administer SIP User

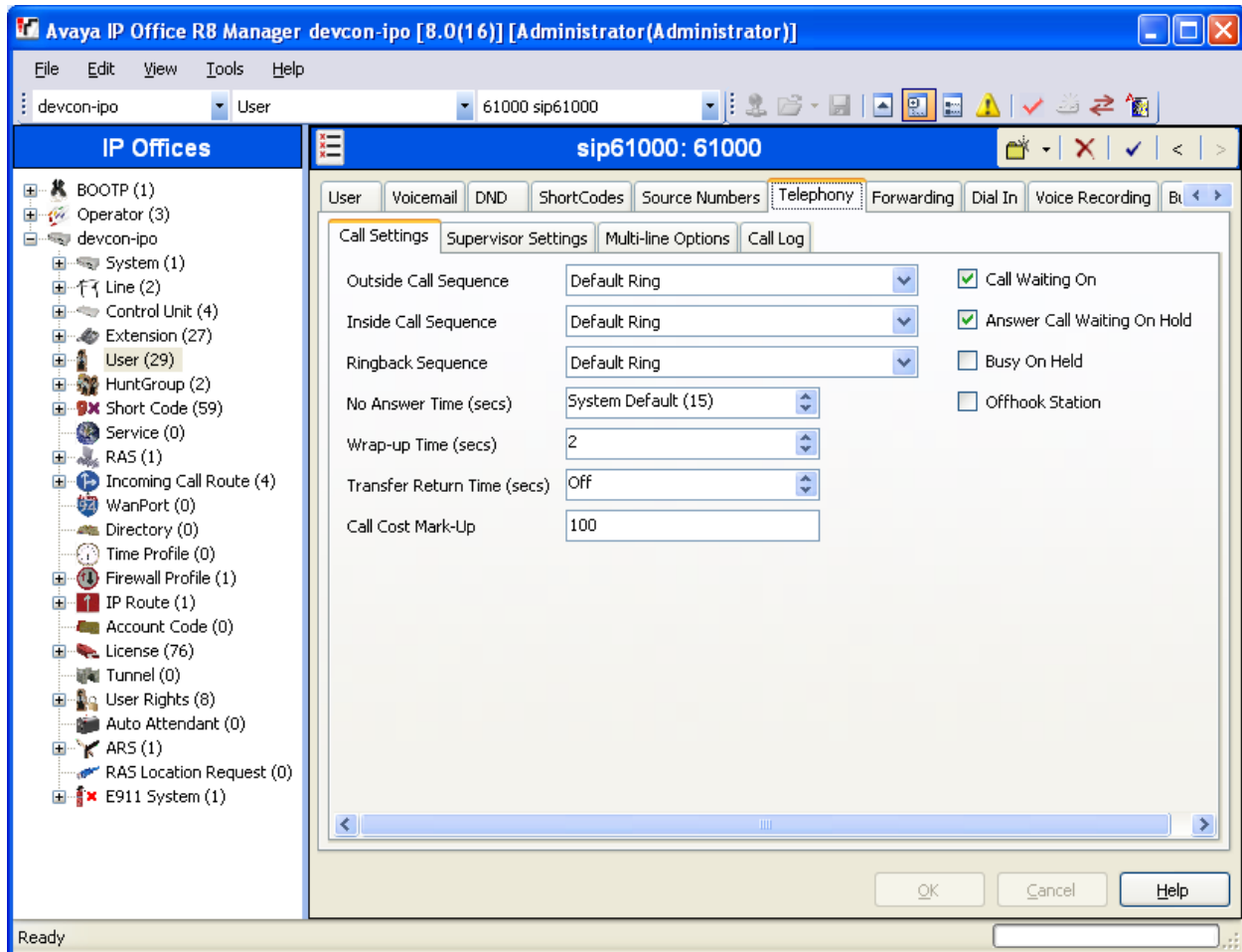
From the configuration tree in the left pane, right-click on **User** and select **New** from the pop-up list. Enter desired values for the **Name** and **Full Name** fields. For the **Extension** field, enter the SIP extension created in **Section 5.4**. The **Name** field specifies the username that will be used by SARA.

The screenshot shows the Avaya IP Office R8 Manager configuration window. The title bar reads "Avaya IP Office R8 Manager devcon-ipo [8.0(16)] [Administrator/Administrator]". The menu bar includes File, Edit, View, Tools, and Help. The toolbar shows various icons for file operations and configuration. The left pane, titled "IP Offices", displays a tree structure with "devcon-ipo" expanded to "User", which is further expanded to "61000 sip61000". The right pane, titled "sip61000: 61000", contains a "User" tab with the following fields and options:

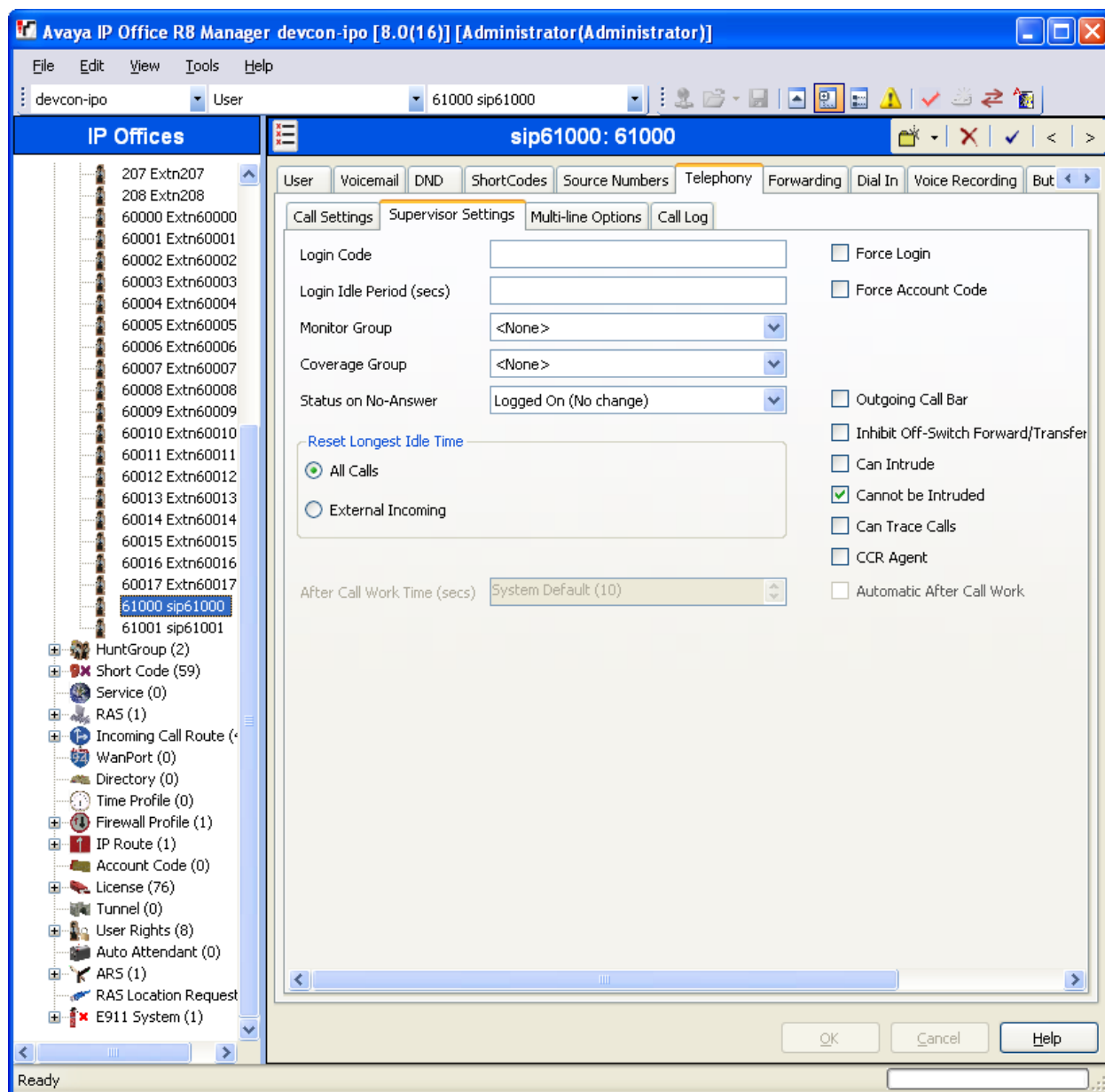
- Name: sip61000
- Password: (empty)
- Confirm Password: (empty)
- Full Name: SARA 1
- Extension: 61000
- Locale: (dropdown menu)
- Priority: 5
- System Phone Rights: None
- Profile: Basic User
- ☐ Receptionist
- ☐ Enable Softphone
- ☐ Enable one-X Portal Services
- ☐ Enable one-X TeleCommuter
- ☐ Enable Remote Worker
- ☐ Ex Directory
- Device Type: Unknown SIP device
- User Rights view: User data
- Working hours time profile: <None>
- Working hours User Rights: (dropdown menu)
- Out of hours User Rights: (dropdown menu)

At the bottom of the right pane are buttons for OK, Cancel, and Help. The status bar at the bottom left shows "Ready".

Select the **Telephony** tab followed by the **Call Settings** sub-tab. Note that the default settings were used.



Select the **Supervisor Settings** tab and enter a desired **Login Code**. The **Login Code** should be left blank since SARA does not currently support SIP registration with a password.



Repeat these steps for additional SARA SIP users.

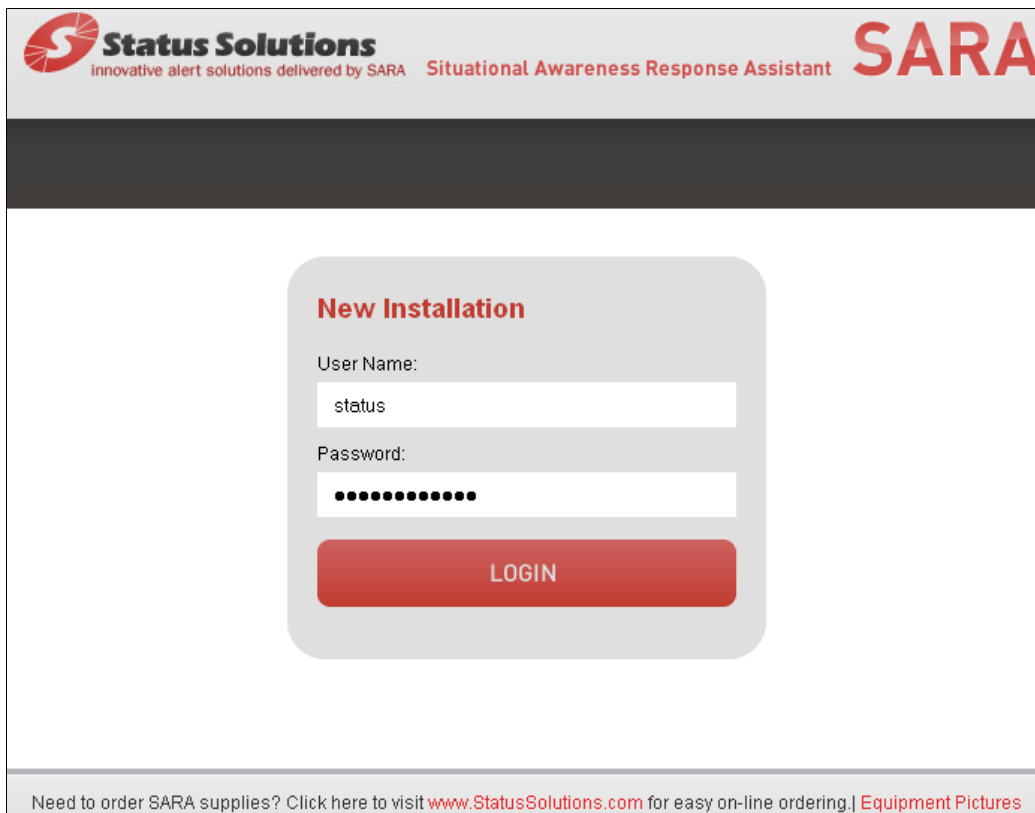
6. Configure Status Solutions SARA

This section provides the procedures for configuring SARA. The procedures include the following areas:

- Configure SIP interface
- Add an alert device

6.1. Configure SIP Interface

Configuration is accomplished by accessing the SARA web admin interface using the URL “http://<ip-address>”, where <ip-address> is the IP address of the SARA server. Log in with the appropriate credentials as shown below.



The screenshot displays the SARA web admin interface. At the top, there is a header bar with the Status Solutions logo on the left, the text "innovative alert solutions delivered by SARA" in the middle, and the word "SARA" in large red letters on the right. Below the header is a dark horizontal bar. The main content area features a "New Installation" login form. This form has a title "New Installation" in red. It contains two input fields: "User Name:" with the text "status" entered, and "Password:" with a series of dots. Below these fields is a red "LOGIN" button. At the bottom of the page, there is a footer bar with the text: "Need to order SARA supplies? Click here to visit www.StatusSolutions.com for easy on-line ordering." followed by a link to "Equipment Pictures".

On the initial screen, select the **Install Setup** tab and navigate to **System Functions** → **Process Setup** to add and configure the SIP interface.

The screenshot shows the SARA web application interface. At the top, the header includes the Status Solutions logo, the text 'innovative alert solutions delivered by SARA', the title 'Situational Awareness Response Assistant', and the large 'SARA' logo. Below the header is a navigation bar with tabs: 'Dashboard', 'Administration', 'Install Setup' (selected), 'Quick Message', 'Reminders', and 'Reports'. A 'Logout' link is in the top right corner. The breadcrumb trail reads 'Dashboard > Install Setup'. The main content area is titled 'Edit Mode' and contains two panels. The left panel, 'System Functions', has a close button and lists 'Process Setup', 'System Setup', and 'Site Contact Information'. The right panel, 'System Integrity Checks', also has a close button and lists 'Event Action by Device Category', 'Auto Create IDs', 'Resident Device Report', and 'Dome Lights Report'. Below these panels is a 'Log Files' section with a close button and a 'View System Log' link. At the bottom right of the main content area is a 'Data Imports' section with a close button.

In the next screen, select **Telephony** from the drop-down text box for the **New Interface Type** field. Click **Add Interface**.

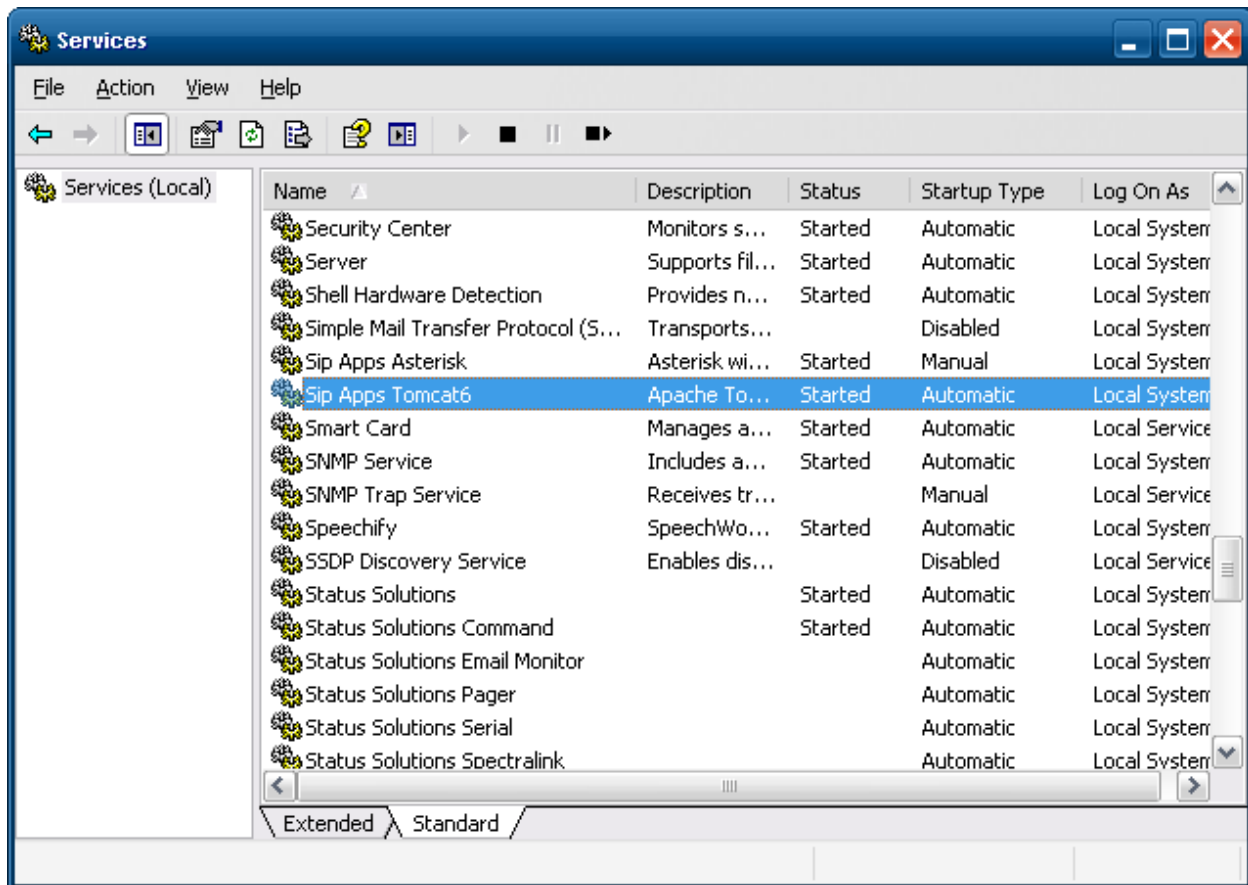
The screenshot shows the SARA web application interface at the 'Process Setup' screen. The header and navigation bar are identical to the previous screenshot. The breadcrumb trail now reads 'Dashboard > Install Setup > Process Setup'. The main content area features a 'New Interface Type:' label followed by a drop-down menu with 'Telephony' selected. To the right of the drop-down menu is an 'Add Interface' button.

In the **Telephony** screen, enter a descriptive name for the **Interface Name** field. Select the **Start Interface when Service Starts** and **Automatically Create New Devices** checkboxes. Set the **Interface Type** field to *SIP Interface* and the **IP Address of ICON SIP Interface** field to the IP address of IP Office. Lastly, configure the extension range supported by SARA. In this example, two SIP extensions were assigned to SARA, *61000* and *61001*. Submit the form. Restarting the Status Solutions process is also required as mentioned in the following section.

Note: The following screen has been displayed after it was already configured.

The screenshot displays the SARA (Situational Awareness Response Assistant) web interface. At the top, the Status Solutions logo is on the left, and the SARA title is on the right. Below the header is a navigation bar with tabs: Dashboard, Administration, Install Setup (selected), Quick Message, Reminders, and Reports. A breadcrumb trail shows 'Dashboard > Install Setup > Process Setup', and a 'Logout' link is in the top right. The main section is titled 'Telephony'. It contains several configuration fields: 'Interface Name' (text box with 'SIP Interface'), two checked checkboxes for 'Start Interface when Service Starts' and 'Automatically Create New Devices', 'Interface Type' (dropdown menu with 'SIP Interface'), and an unchecked checkbox for 'Only Process Alert Devices Restricted to this Interface'. A note states: 'ICON SIP Interface Parameters (You MUST restart Apache Tomcat for changes to the ICON SIP interface to take effect)'. Below this are fields for 'Minimum Activity Interval' (3), 'IP Address of ICON SIP Interface' (192.168.100.30), 'Number of Simultaneous Calls (Max = 24)' (2), 'Starting DN of SIP extensions' (61000), and 'Ending DN of SIP extensions' (61001). There is a 'Notes' text area at the bottom left and a red 'Update' button at the bottom right.

After configuring the SIP interface, restart the **Sip Apps Tomcat6** and **Status Solutions** processes under Windows Services.



At this point, the SIP interface should be up and connected to IP Office. See **Section 7** for steps to verify the SIP interface status.

6.2. Add an Alert Device

Add an alert device to specify the device that will receive alerts from SARA. Select the **Administration** tab and then navigate to **Device Administration** → **Alert Devices**.

Status Solutions innovative alert solutions delivered by SARA **Situational Awareness Response Assistant SARA**

Dashboard Administration Install Setup Quick Message Reminders Reports

Dashboard > Administration [Logout](#)

Device Administration ×

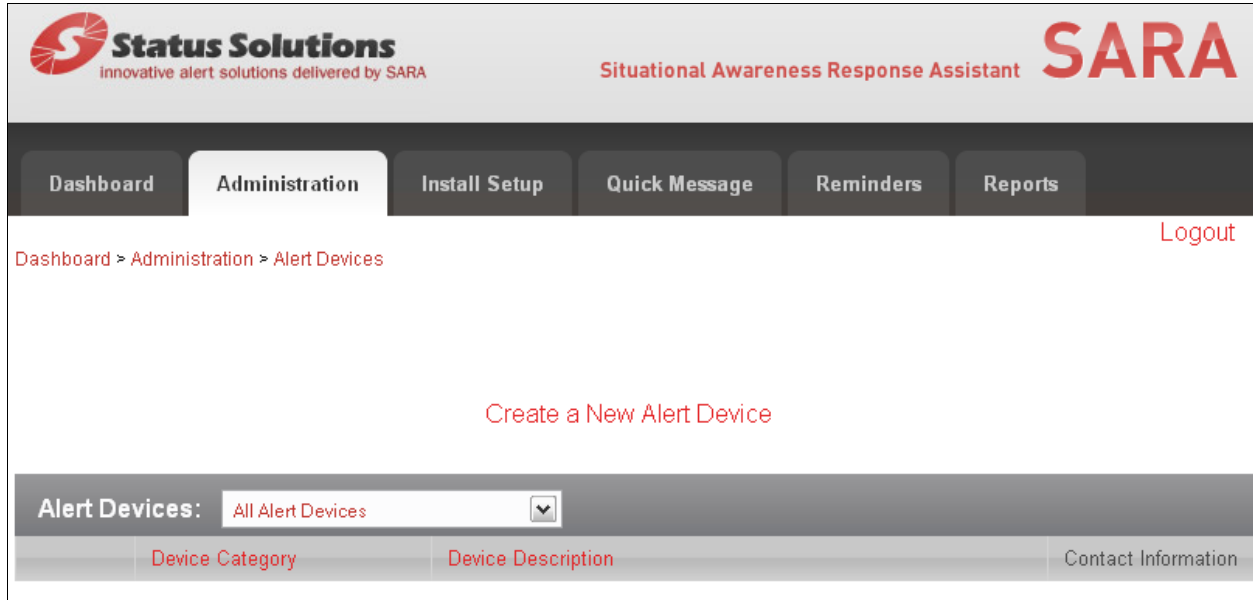
- Monitored Devices
- Device Categories
- Alert Devices
- Alert Groups
- Residence Information
- Asset Information
- Roam Alert Tags
- Silence Tracked Devices
- Equipment Pictures

Modes and Actions ×

- Modes and Actions
- User Administration** ×
- Add/Delete Users

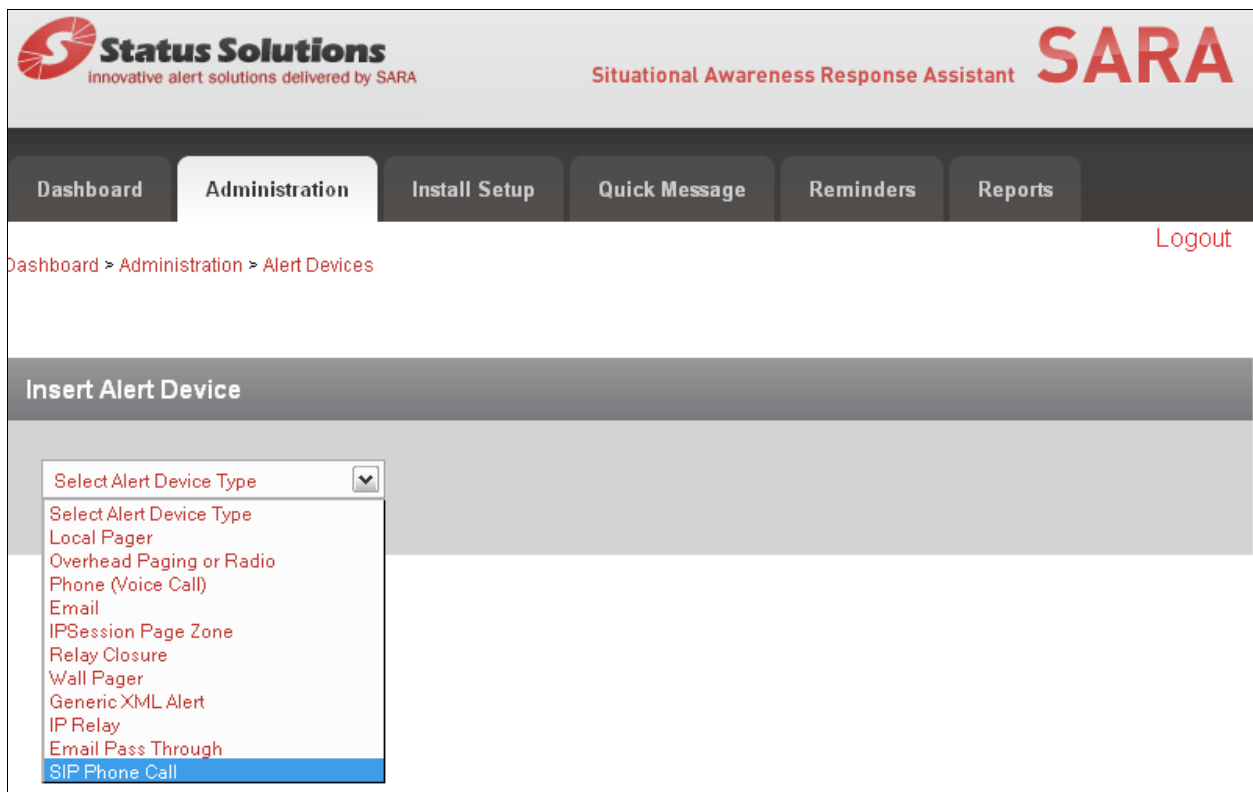
Edit Mode

On the next screen, click the **Create a New Alert Device** hyperlink.



The screenshot shows the SARA web application interface. At the top, the Status Solutions logo is on the left, and 'Situational Awareness Response Assistant SARA' is on the right. Below the header is a navigation bar with tabs: Dashboard, Administration (selected), Install Setup, Quick Message, Reminders, and Reports. A breadcrumb trail reads 'Dashboard > Administration > Alert Devices'. A 'Logout' link is in the top right. The main content area features a large red hyperlink 'Create a New Alert Device'. Below this is a section titled 'Alert Devices:' with a dropdown menu set to 'All Alert Devices'. At the bottom, a table header is visible with columns: Device Category, Device Description, and Contact Information.

In the **Insert Alert Device** screen, select *SIP Phone Call* from the drop-down text box shown below.



The screenshot shows the 'Insert Alert Device' screen in the SARA application. The navigation bar and breadcrumb trail are the same as in the previous screenshot. The main content area has a title 'Insert Alert Device'. Below the title is a dropdown menu labeled 'Select Alert Device Type'. The dropdown is open, showing a list of options: Select Alert Device Type, Local Pager, Overhead Paging or Radio, Phone (Voice Call), Email, IP Session Page Zone, Relay Closure, Wall Pager, Generic XML Alert, IP Relay, Email Pass Through, and SIP Phone Call. The 'SIP Phone Call' option is highlighted in blue.

In the subsequent screen, enter a **Description** for the alert device (e.g., *IP Office Test*). Specify the **Telephone** number that should receive the alert (e.g., *60000*, which is a local station). Select the **Restrict calls to this interface** check box and specify *SIP Interface* from the drop-down box. Lastly, specify the retry strategy if an alert call is unsuccessful. In this example, the number of retries was set to 3 and the time interval between retries was set to *10*. For the compliance testing, the time interval of 1 minute between alert retries was also tested and verified. Click **Insert Alert Device** button (not shown).

The screenshot displays the SARA web application interface. At the top, the header includes the Status Solutions logo, the text 'innovative alert solutions delivered by SARA', the title 'Situational Awareness Response Assistant', and the large 'SARA' logo. Below the header is a navigation bar with tabs: 'Dashboard', 'Administration' (selected), 'Install Setup', 'Quick Message', 'Reminders', and 'Reports'. A breadcrumb trail shows 'Dashboard > Administration > Alert Devices', and a 'Logout' link is in the top right. The main content area is titled 'Update Alert Device: SIP Phone Call'. It contains several form fields: 'Description' with the value 'IP Office Test'; 'Alert Device Category' with a dropdown menu showing 'No Category Selected'; 'Telephone number' with the value '60000'; a checked checkbox for 'Restrict calls to this interface' with a dropdown menu showing 'SIP Interface'; three unchecked checkboxes for 'Retry after leaving a message', 'Retry after no answer', and 'Send notification when alarm is confirmed'; 'How many times should the system try to call?' with the value '3'; and 'How many minutes should the system wait between call attempts?' with the value '10'.

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Situational Awareness Response Assistant

SARA

Dashboard Administration Install Setup Quick Message Reminders Reports

Dashboard > Administration > Alert Devices Logout

Update Alert Device: SIP Phone Call

Description
IP Office Test

Alert Device Category [?]
No Category Selected

Telephone number [?]
60000

☒ Restrict calls to this interface: [?] SIP Interface

☐ Retry after leaving a message [?]

☐ Retry after no answer [?]

☐ Send notification when alarm is confirmed [?]

How many times should the system try to call?
3

How many minutes should the system wait between call attempts?
10

7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of SARA and Avaya IP Office.

1. From the **Avaya IP Office R8 Manager** screen shown in **Section 5.1**, select **File → Advanced → System Status** to launch the **System Status** application, and log in with the appropriate credentials. The **IP Office System Status** screen is displayed. Expand **Extensions** in the left pane and select the SIP extension. Verify that the **Current State** is *Idle*.

IP Office R8 System Status - devcon-ipo (192.168.100.30) - IP500 V2 8.0 (16)

AVAYA IP Office System Status

Help Snapshot LogOff Exit About

System
Alarms (6)
Extensions (11)
201
202
203
204
205
206
207
208
60000
60001
61000
Trunks (2)
Active Calls
Resources
Voicemail
IP Networking

Extension Status


Extension Number: 61000
IP address: 192.168.100.100
User Agent:
Telephone Type: Unknown SIP Device
Current User Extension Number: 61000
Current User Name: sip61000
Forwarding: Off
Twinning: Off
Do Not Disturb: Off
Message Waiting: Off
Number of New Messages:
Phone Manager Type: None
SIP Device Features: REFER,UPDATE
License Reserved: No
Last Date and Time License Allocated: 3/2/2012 1:10:51 PM
Packet Loss Fraction:
Jitter:
Round Trip Delay:
Connection Type:
Codec:
Remote Media Address:

Call Ref	Current State	Time in State	Calling Number or Called	Direction	Other Party on Call
	Idle	00:01:22			

Trace Trace All Pause Ping Call Details Print... Save As...

1:14:10 PM Online

- From the SARA web admin interface, navigate to **Reports → System Status** and verify that the **SIP Interface** is in the *Connected* state.

 **Status Solutions**
innovative alert solutions delivered by SARA

Situational Awareness Response Assistant **SARA**

Dashboard

Administration

Install Setup

Quick Message

Reminders

Reports

[Dashboard](#) > [Reports](#) > [System Status](#) [Logout](#)

System Status

Process Name	Start Time	Last Watchdog Check	Status	Interface
init	Mon 03/05 15:54:04	Mon 03/05 17:43:45	OK	
email	Mon 03/05 15:54:07	Mon 03/05 17:43:46	OK	
monitor	Mon 03/05 15:54:07	Mon 03/05 17:43:46	OK	
scheduler	Mon 03/05 15:54:07	Mon 03/05 17:42:38	OK	
alarm	Mon 03/05 15:54:07	Mon 03/05 17:43:47	OK	
quick_msg	Mon 03/05 15:54:07	Mon 03/05 17:43:46	OK	
SIP Interface	Mon 03/05 15:54:32	Mon 03/05 17:43:37	OK	Connected

System Revision 4.0 (Build 07:4176M) Built Wed Feb 22 09:42:18 2012 (RELEASE) started at Mon Mar 05 15:54:00 2012
UI Revision: 4176
System Temperature: 73F

3. Trigger a **Quick Message** as shown below and click the **Send Quick Message** button.

The screenshot shows the SARA web interface. At the top, the Status Solutions logo is on the left, and 'Situational Awareness Response Assistant SARA' is on the right. Below the header is a navigation bar with tabs: Dashboard, Administration, Install Setup, Quick Message (selected), Reminders, and Reports. A 'Logout' link is in the top right corner. Below the navigation bar, a breadcrumb trail reads 'Dashboard > Quick Message'. A grey instruction bar says 'Enter the message, select the recipients, then click 'Send' to send the message'. The main form area includes a 'Quick Pick [?]' dropdown set to 'None', with 'Preview' and 'Manage Quick Picks' buttons. A 'Message' text area contains 'This is quick message 1 for testing.'. Below this, a section titled 'Select the Alert Devices you wish to have contacted with this message' has a 'Device Type/Category:' dropdown set to 'All Alert Devices'. A scrollable list shows 'Email' and 'Phone' categories. Under 'Email', 'Check all Email devices' is unchecked and 'Default Alert Email (status@statusolutions.com)' is unchecked. Under 'Phone', 'Check all Phone devices' is unchecked and 'IP Office Test (60000)' is checked with a green checkmark. At the bottom are three red buttons: 'Send Quick Message', 'Clear Form', and 'Quick Message Log'.

4. Verify that the alert device receives the alert call and hears the announcement. The alert device can acknowledge the call and then hang up.

5. Check the reports to verify that the appropriate alert call status was logged. Navigate to **Reports → Quick Message Log** as shown below.

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Situational Awareness Response Assistant **SARA**

Dashboard Administration Install Setup Quick Message Reminders **Reports**

Dashboard > Reports Logout

Edit Mode

Event Reports	System Status Reports
Alarm History	Audit Log
Average Alarm Response Time	Quick Message Log
Nurse Checkin Report	System Status
Track Mobile Devices	Checkin Reports

6. Check the **Quick Message Log** for the proper status. Click on the **Details** button by the log entry to display additional details.

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Situational Awareness Response Assistant **SARA**

Dashboard Administration Install Setup Quick Message Reminders **Reports**

Dashboard > Reports > Quick Message Log Logout

Quick Message Log

Details	Start Time	Sent By	Status	Last Update	Message
Details	Mon 03/05 04:00:38 PM	Status	Complete	Sat 00/00 12:00:00 AM	Call to PSTN
Details	Mon 03/05 03:46:34 PM	Status	Complete	Sat 00/00 12:00:00 AM	PSTN quick message
Details	Mon 03/05 03:38:31 PM	Status	Complete	Sat 00/00 12:00:00 AM	Another quick message

8. Conclusion

These Application Notes describe the configuration steps required to integrate Status Solutions SARA with Avaya IP Office using SIP registration. All feature and serviceability test cases were completed and passed.

9. Additional References

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

1. *IP Office 7.0 Documentation CD*, March 2011, available at <http://support.avaya.com>.
2. *Status Solutions SARA User Guide 4.0*.

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