SPA8000 Firmware Version 6.1.3

This document describes the updates that have been made since version 5.1.12 and provides instructions for downloading and installing the new firmware.

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New Features

Several new features have been added since version 5.1.12.

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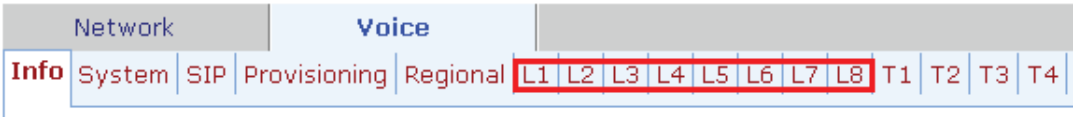
SIP Trunking and Hunting

The SPA8000 now supports SIP trunking, which allows you to connect a traditional PBX to VoIP services. You can associate each of the eight FXO lines to one of four trunk groups. An incoming call automatically rings the grouped lines simultaneously or in a specified order, depending on the Contact List rule. For outbound calls, SIP trunking ensures that all calls that are placed on a trunk line are identified by a common telephone number and caller ID.

Assigning a Line to a Trunk Group

1. Click **Voice tab** > **L*n*** for the line that you want to assign to a trunk group.

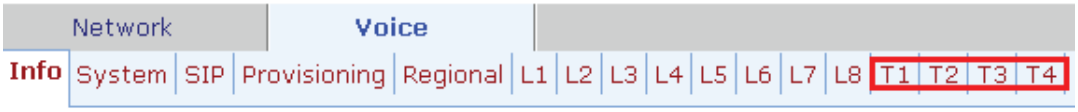


2. Choose a trunk number from the *Trunk Group* field.

3. Click **Submit All Changes** when you finish making all changes on the *Voice* pages.

Configuring a Trunk Group

1. Click **Voice tab** > **T*n*** for the trunk that you want to configure.



2. Enter the account information, call capacity, and contact list rule (see "Contact List Syntax and Examples" on page 2).

Subscriber Information			
Display Name:	My Company	User ID:	9725550100
Password:	********	Use Auth ID:	no
Auth ID:		Call Capacity:	10
Contact List:	1,2,3,4,5,6,7,8,hunt=re;*;1		

3. Click **Submit All Changes** when you finish making all changes on the *Voice* pages.

Setting the Hunt Policy

1. Click **Voice tab** > **SIP**.
2. Scroll down to the *Trunking Parameters* section.
3. In the *Hunt Policy* field, choose the desired option:
   - **onhook only:** The hunt includes only the phones that are on hook.
   - **any state:** The hunt includes all phones regardless of the state.
4. Click **Submit All Changes** when you finish making all changes on the *Voice* pages.

Contact List Syntax and Examples

SYNTAX: `line[,line[,line[…]]],hunt=hrule[,cfwd=target]`

- **line:** The line numbers (1 - 8), or a wildcard * or ? to represent all lines. This rule applies only to lines that are assigned to a trunk group.
- **hrule:** The hunt order, ring interval, and maximum duration, in the following format: `hunt=algo;interval;max`
  - **algo:** The hunt order. There are four options:
    - **re:** Restart. Hunting starts at the beginning of the list. If the first line does not answer within the specified interval (see below), the hunt proceeds through the lines in sequential order.
    - **ne:** Next. The Trunk SIP User Agent (ua) determines the line that was chosen in the previous hunt, and hunting starts with the next line in the list. If that line does not answer within the specified interval (see below), the hunt proceeds through the lines in sequential order.
    - **ra:** Random order. The Trunk ua randomly chooses a line from the list. If the selected line does not answer within the specified interval (see below), the hunt proceeds randomly through the unchosen lines until each line is tried.
    - **al:** All. The Trunk ua rings all the lines at the same time.
  - **interval:** The number of seconds to wait for one line to answer, before choosing another line. If interval is *, the hunt is stopped at the first line that starts ringing, and rings the line until it answers, or the caller hangs up, or the line's ringer times out.
  - **max:** The maximum duration of the hunt, either in seconds or cycles. When this limit is reached, the call is rejected or is forwarded to the specified call forward number (see below). If `max` is greater than `interval`, it represents the total time in seconds to hunt. If `max` is less than `interval`, it represents the maximum number of times to cycle through the hunt group. If `max` is 0, hunting continues indefinitely until the caller either hangs up or the call is answered. Exceptions: This value is ignored if `algo = all`, or `interval = *` (but this value must be present and should be set to 1).
- **cfwd=target:** If the call is unanswered and the maximum hunting duration has been met, the call is forwarded to the specified number.

  NOTE: The call forward settings for the individual lines are ignored during hunting. Instead, the cfwd settings in the Contact List are used.

EXAMPLES:

- **`1,2,3,4,5,6,7,8,hunt=re;*;1`**

  Lines 1 through 8 are included (**`1,2,3,4,5,6,7,8`**). The hunt starts at the beginning of the list (**`hunt=re`**). When an available line is found, the call stays with the line until the call is either answered, rejected, or cancelled by the caller (**`*`** is entered for interval).

- **`?,hunt=al;30;1,cfwd=14085550100`**

  A wildcard character (**`?`**) is used to represent "all trunk lines." All lines ring simultaneously (**`hunt=al`**). If there is no answer after 30 seconds (**`30`**), the call is forwarded to the specified number (**`cfwd=14085550100`**).

- **`?,hunt=ra;12;1,cfwd=14085550123`**

  A wildcard character is used to represent "all trunk lines." The Trunk ua chooses lines in random order (**`hunt=ra`**). If a selected line does not answer within 12 seconds (**`12`**), the Trunk ua chooses another line at random. If there is no answer after 1 cycle (**`1`**), the call is forwarded to forwarded to the specified number (**`cfwd=14085550123`**).

- **`?,hunt=ra;*;1,cfwd=14085550155`**

  A wildcard character is used to represent "all trunk lines." The Trunk ua chooses lines in random order (**`hunt=ra`**). The interval is **`*`**, meaning the hunt stops when a selected line starts ringing, and will ring the line until it answers, or the caller hangs up, or the line's ringer times out. If the ringer times out, the call is automatically forwarded to the specified number (**`cfwd=14085550155`**).

Other New Features

- **Use Anonymous with RPID:** "Anonymous" can be used in the SIP message when remote party ID is requested in the SIP message. The default value is yes. You can configure this setting on the *Voice* > *Ln* page, *SIP Settings* section.
- **Use Local Addr in FROM:** The IP address of the local address can be enclosed in the FROM of the SIP message. The default value is no. You can configure this setting on the *Voice* > *Ln* page, *SIP Settings* section.

New XML Parameters for Provisioning

This section describes the new parameters that are now available for provisioning.

NOTE: A sample XML profile can be generated by using the Linksys profile compiler tool (SPC). For instructions about provisioning, see the *Linksys SPA Provisioning Guide* (available to partners through the Linksys Partner Connection).

Feature/XML Tag	Description/Parameters	Examples
Hunt Policy <Hunt_Policy>	Can be used to restrict hunting based on the line state. Parameters: **onhook only:** The hunt includes only the phones that are on hook. **any state:** The hunt includes all phones regardless of the state.	**To restrict hunting to include only lines that are onhook:** <Hunt_Policy>onhook only</Hunt_Policy> **To allow hunting regardless of line state:** <Hunt_Policy>any state</Hunt_Policy>
Proxy Debug Option <Proxy_Debug_Option>	Determines the proxy debuy messages to log. Parameters: **none:** No logging. **1-line:**Logs the start-line only for all messages. **1-line excl. OPT:**Logs the start-line only for all messages except OPTIONS requests/responses. **1-line excl. NTFY:**Logs the start-line only for all messages except NOTIFY requests/responses. **1-line excl. REG:**Logs the start-line only for all messages except REGISTER requests/responses. **1-line excl. OPT|NTFY|REG:**Logs the start-line only for all messages except OPTIONS, NOTIFY, and REGISTER requests/responses. **full:**Logs all SIP messages in full text. **full excl. OPT:**Logs all SIP messages in full text except OPTIONS requests/responses. **full excl. NTFY:**Logs all SIP messages in full text except NOTIFY requests/responses. **full excl. REG:**Logs all SIP messages in full text except REGISTER requests/responses. **full excl. OPT|NTFY|REG:**Logs all SIP messages in full text except for OPTIONS, NOTIFY, and REGISTER requests/responses.	**To log the start line only for all messages except OPTIONS requests/responses:** <Proxy_Debug_Option>1-line excl. OPT</Proxy_Debug_Option>

Feature/XML Tag	Description/Parameters	Examples
Trunk Group Assignment <Trunk_Group_*Line*>	Can be used to assign a line to a Trunk Group. Use <Trunk_Group_1> to set a trunk group for Line 1, <Trunk_Group_2 > to set a trunk group for Line 2, and so on. Parameters: **1:** Trunk Group 1 **2:** Trunk Group 2 **3:** Trunk Group 3 **4:** Trunk Group 4 **none:** Standalone	**To assign Line 1 to Trunk Group 3:** <Trunk_Group_1 >3</Trunk_Group_1> **To assign Line 2 to Trunk Group 4:** <Trunk_Group_2 >4</Trunk_Group_2>
Use Anonymous with RPID <Use_Anonymous_With_RPID_*Line* >	Can be used to allow or prevent the use of "anonymous" in SIP messages. Configure per line or trunk. Lines 1 to 8 are represented by numerals 1 to 8 and Trunks 1 to 4 are represented by numerals 9 to 12. Parameters: **Yes:** "Anonymous" can be used in the SIP message when remote party ID is requested in the SIP message. **No:** "Anonymous" cannot be used with RPID.	**To allow Line 2 to use anonymous with RPID:** <Use_Anonymous_With_RPID_2 >Yes </Use_Anonymous_With_RPID_2> **To allow Trunk 2 to use anonymous with RPID:** <Use_Anonymous_With_RPID_10 >Yes </Use_Anonymous_With_RPID_10> **To prevent Line 3 from using anonymous with RPID:** <Use_Local_Addr_In_FROM_3>No</Use_Local_Addr_In_FROM_3>
Use Local Address <Use_Local_Addr_In_FROM_*Line*>	Can be used to enclose the IP address of the local address in the FROM header of the SIP message. Configure per line or trunk. Lines 1 to 8 are represented by numerals 1 to 8 and Trunks 1 to 4 are represented by numerals 9 to 12. Parameters: **Yes:** The local address is included. **No:** The local address is not included.	**To allow Line 3 to use a local address in the FROM header:** <Use_Local_Addr_In_FROM_3>Yes</Use_Local_Addr_In_FROM_3> **To allow Trunk 3 to use a local address in the FROM header:** <Use_Local_Addr_In_FROM_11>Yes</Use_Local_Addr_In_FROM_11> **To prevent Line 3 from using a local address in the FROM header:** <Use_Local_Addr_In_FROM_3>No</Use_Local_Addr_In_FROM_3>
Synchronized_Ring <Synchronized_Ring>	Applies to trunk group (hunt group) calls that are routed to multiple phones simultaneously. Determines whether to activate all ringers in synch or to alternate ringing between odd-numbered and even-numbered ports. Parameters: **no:** Ringing alternates between odd-numbered ports (1, 3, 5, 7) and even number ports (2, 4, 6, 8). **yes:** Ringing is synchronous on all ports. NOTE: All odd-numbered ports ring synchronously and all even-numbered ports ring synchronously regardless of this setting.	**To cause all ports to ring synchronously when a call is routed to multiple lines:** <Synchronized_Ring>Yes</Synchronized_Ring> **To alternate ringing between the odd-numbered ports and the even-numbered ports:** <Synchronized_Ring>No</Synchronized_Ring>

Feature/XML Tag	Description/Parameters	Examples
Daylight_Saving_ Time_Enable	Can be used to enable Daylight Saving Time for a line.	**To enable daylight saving time:** <Daylight_ Saving_Time_Enable>Yes</Daylight_Saving_ Time_Enable> **To disable daylight saving time:** <Daylight_ Saving_Time_Enable>Yes</Daylight_Saving_ Time_Enable>

Upgrading the Firmware for the SPA8000

You need to download the firmware from Linksys.com and then install it on the SPA8000.

Downloading the Firmware from Linksys.com

1. Start Internet Explorer, and enter the following URL: http://www.linksys.com
2. From the menu at the top of the page, select **Support > Technical Support**.
3. Click **Choose a Product**.

   NOTE: If you are visiting the site for the first time, you may be prompted to choose your location before continuing.
4. On the *Select Product Category* page, find the *Voice over IP (VoIP)* drop-down list. Choose **Voice Over IP Routers**.
5. On the *Choose The Device* page, choose **SPA8000**. from the drop-down list near the end of the page.

6. On the *SPA8000* Downloads page, choose **Version 1.0** in the drop-down list.
7. Under *Firmware*, click the link for the latest version of the firmware.

   NOTE: If you are using Windows XP Service Pack 2 (SP2) and Internet Explorer, you may see the *"Pop-up blocked"* message in your browser information bar. If you see this message, click the information bar and select **Temporarily Allow Pop-ups**. Then click the link again.

8. Click **Save** in the *File Download* dialog box that appears.
9. In the *Save As* dialog box, choose a location for the file and then click **Save**.
10. When the download is complete, if prompted, click **Close**.

    NOTE: The name of the file depends on the firmware file of your device. If the firmware file you download is in zip format, double-click the file and extract its contents to a single folder or to the desktop. To extract the firmware file from the archive, use a utility such as WinZip, or use the built-in decompression features of Windows XP.

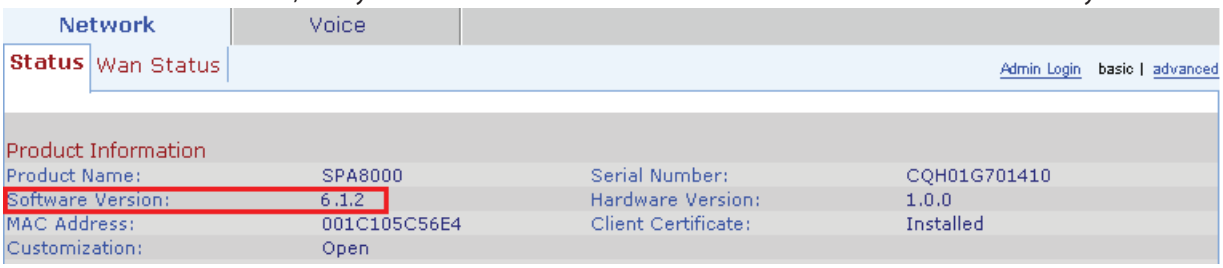
Installing the Firmware

1. Use the administration computer to install the latest firmware:
   a. Extract the Zip file, and then run the executable file to upgrade the firmware.
   b. When the *Firmware Upgrade Warning* window appears, click **Continue**.
   c. In the next window that appears, enter the IP address of the SPA8000, and then click **OK**.

      NOTE: To find out the IP address of your SPA8000, connect an analog telephone to Phone 1. Press * * * *, option 110#, and write down the value.

   d. In the *Confirm Upgrade* window, verify that the correct device information and product number appear. Then click **Upgrade**.

   A progress message appears while the upgrade is in progress. The success window appears when the upgrade is completed. The device reboots.
2. Click **OK** to close the confirmation message.
3. To verify the upgrade, start Internet Explorer, and enter the IP address of the SPA8000. Check the *Network* > *Status* page. In the *Product Information* section, verify that the *Software Version* field shows the firmware version that you installed.



NOTE: You may need to refresh your browser to display the updated page reflecting the new version number.