

# Call Park: SPA IP Phones & Broadsoft

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This Application Note describes how to configure and use the Broadsoft Call Park feature on Cisco SPA phones that are registered to Broadsoft's Broadworks environment.

## Scenario:

- Phone A == 2142148001 on ext1
- Phone B == 2142148002 on ext1
- PhoneC == 2142148004 on ext1

## Configuration Goal

PhoneA receives a call from PhoneB but wants to pick up the call at another phone but they don't know the other phone's extension. The need is for PhoneA to park the call from PhoneB and then unpark the call from any other phone. This document describes the configuration and use of the Call Park feature.

## Summary

If you are not interested in the details, this summary is what you need to do.

Each step is addressed in detail on the following pages.

1. Determine the FAC being used for Call Park on Broadsoft.
2. Verify that the phone does not have any Vertical Service Activation Codes that may conflict with the FAC.
3. Enable PSKs on the phone.
4. Verify that the phone is using Per Call navigation [7.4.7 firmware and more recent].
5. Enable Programmable Softkeys on the phone.
6. Select an available PSK, PSK2 is used in this document. Configure it with your equivalent of the following:  
**fnc=sd;ext=\*68@\$PROXY;vid=8002;nme=PARK**
7. Insert a call to the PSK from the phone's Connected Key List, for example:  
**psk2 | 1;**
8. Submit All Changes on the phone.

## Parking & Unparking Calls

There are two ways to park a call using your SPA phone:

1. Press the park speed dial soft key [configured in this document]
2. Directly use Broadsoft's Feature Access Code:
  - a. Press hold
  - b. Dial \*68
  - c. Dial a park extension

## Important to Know

- The SPA phones support Vertical Service Activation Codes (star-codes). The phones, by default are configured with a functional set of star-codes. These codes conflict with Broadsoft and must be removed as described in this document.
- The SPA phones have, by default soft keys for park and unpark. These soft keys are designed for other call controllers and do not work with Broadsoft.

## Overview of Tasks

You need to perform 3 tasks to ensure that the Call Park Feature works as expected:

- A. Determine the Feature Access Code (FAC) for park (\*68 by default) and unpark (\*86 by default).
- B. Disable the SPA phone's vertical service activation codes if they have not already been disabled.
- C. Configure a programmable function key on your phone

## Configuration Steps in Detail

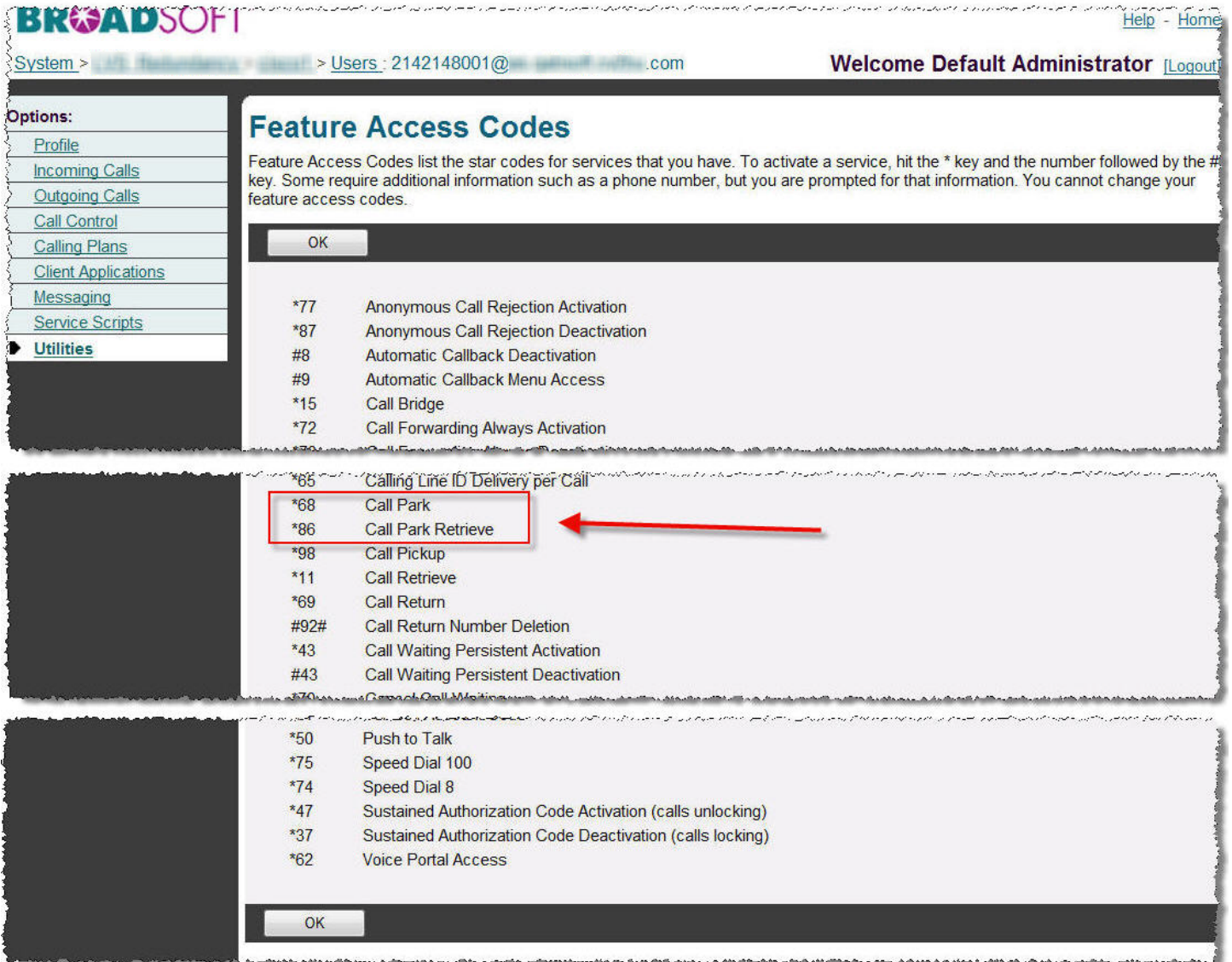
### A. Determine the FAC on Broadsoft

1. Working on the Broadsoft user's page, navigate to user > Utilities > Feature Access Codes



The screenshot displays the Broadsoft user interface. At the top left is the Broadsoft logo. Below it, the system information shows "System > [redacted] Users : 2142148001@[redacted].com". On the top right, it says "Welcome Default Ac". A left-hand navigation menu titled "Options:" lists various settings: Profile, Incoming Calls, Outgoing Calls, Call Control, Calling Plans, Client Applications, Messaging, Service Scripts, and Utilities (which is currently selected). The main content area is titled "Utilities" and contains several sections: "Basic", "Authentication" (with a description: "Perform authentication upon the registration of an IP phone to prevent unauthorized access to the system."), "Enhanced Call Logs" (with a description: "Display the most recently received, missed, or placed calls."), "Feature Access Codes" (with a description: "Display the feature access codes (star codes) for your services." and a red arrow pointing to it), "Enterprise Directory" (with a description: "Display the enterprise directory list."), "Intercept User - Off" (with a description: "Prevent your phone number from receiving calls."), and "Registrations" (with a description: "Displays all the static and dynamic registrations for a user.").

2. Click Feature Access Codes



The screenshot shows the BroadSoft administrative interface. At the top, there is a navigation bar with 'System > Users: 2142148001@... .com' and a 'Welcome Default Administrator' message. On the left, a sidebar lists 'Options' such as Profile, Incoming Calls, Outgoing Calls, Call Control, Calling Plans, Client Applications, Messaging, Service Scripts, and Utilities. The main content area is titled 'Feature Access Codes' and includes an explanatory paragraph: 'Feature Access Codes list the star codes for services that you have. To activate a service, hit the \* key and the number followed by the # key. Some require additional information such as a phone number, but you are prompted for that information. You cannot change your feature access codes.' Below this is a scrollable list of codes. A red box highlights the entries '\*68 Call Park' and '\*86 Call Park Retrieve', with a red arrow pointing to them from the right. Other visible codes include \*77, \*87, #8, #9, \*15, \*72, \*65, \*98, \*11, \*69, #92#, \*43, #43, \*70, \*50, \*75, \*74, \*47, \*37, and \*62. An 'OK' button is located at the bottom of the list.

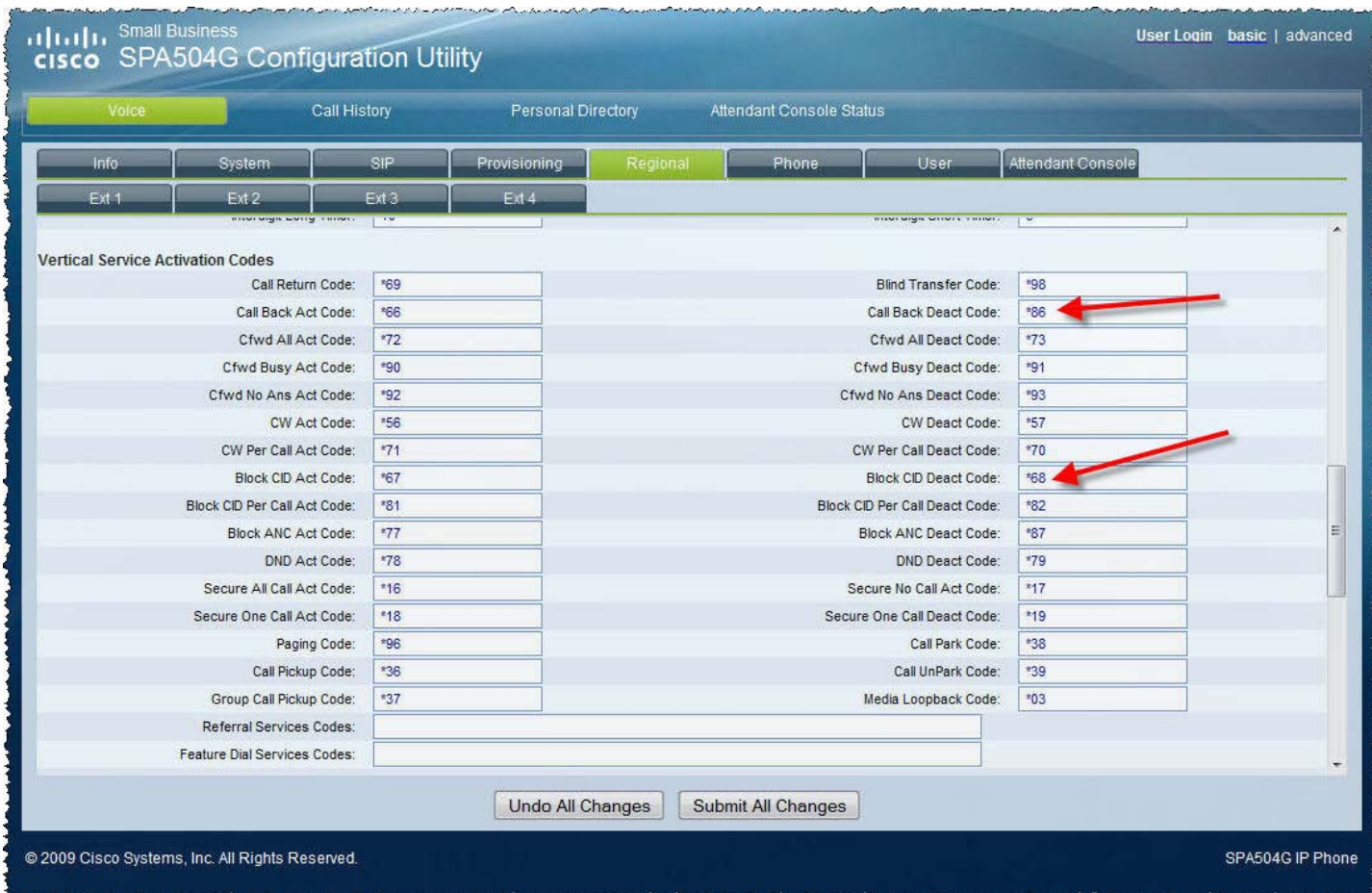
Code	Description
*77	Anonymous Call Rejection Activation
*87	Anonymous Call Rejection Deactivation
#8	Automatic Callback Deactivation
#9	Automatic Callback Menu Access
*15	Call Bridge
*72	Call Forwarding Always Activation
*65	Calling Line ID Delivery per Call
*68	Call Park
*86	Call Park Retrieve
*98	Call Pickup
*11	Call Retrieve
*69	Call Return
#92#	Call Return Number Deletion
*43	Call Waiting Persistent Activation
#43	Call Waiting Persistent Deactivation
*70	Cancel Call Waiting
*50	Push to Talk
*75	Speed Dial 100
*74	Speed Dial 8
*47	Sustained Authorization Code Activation (calls unlocking)
*37	Sustained Authorization Code Deactivation (calls locking)
*62	Voice Portal Access

3. Scroll down and take note of the FACs. This example shows that the default FACs of \*68 and \*86 are in use.

### B. Disable the SPA Phone's Vertical Service Activation Codes

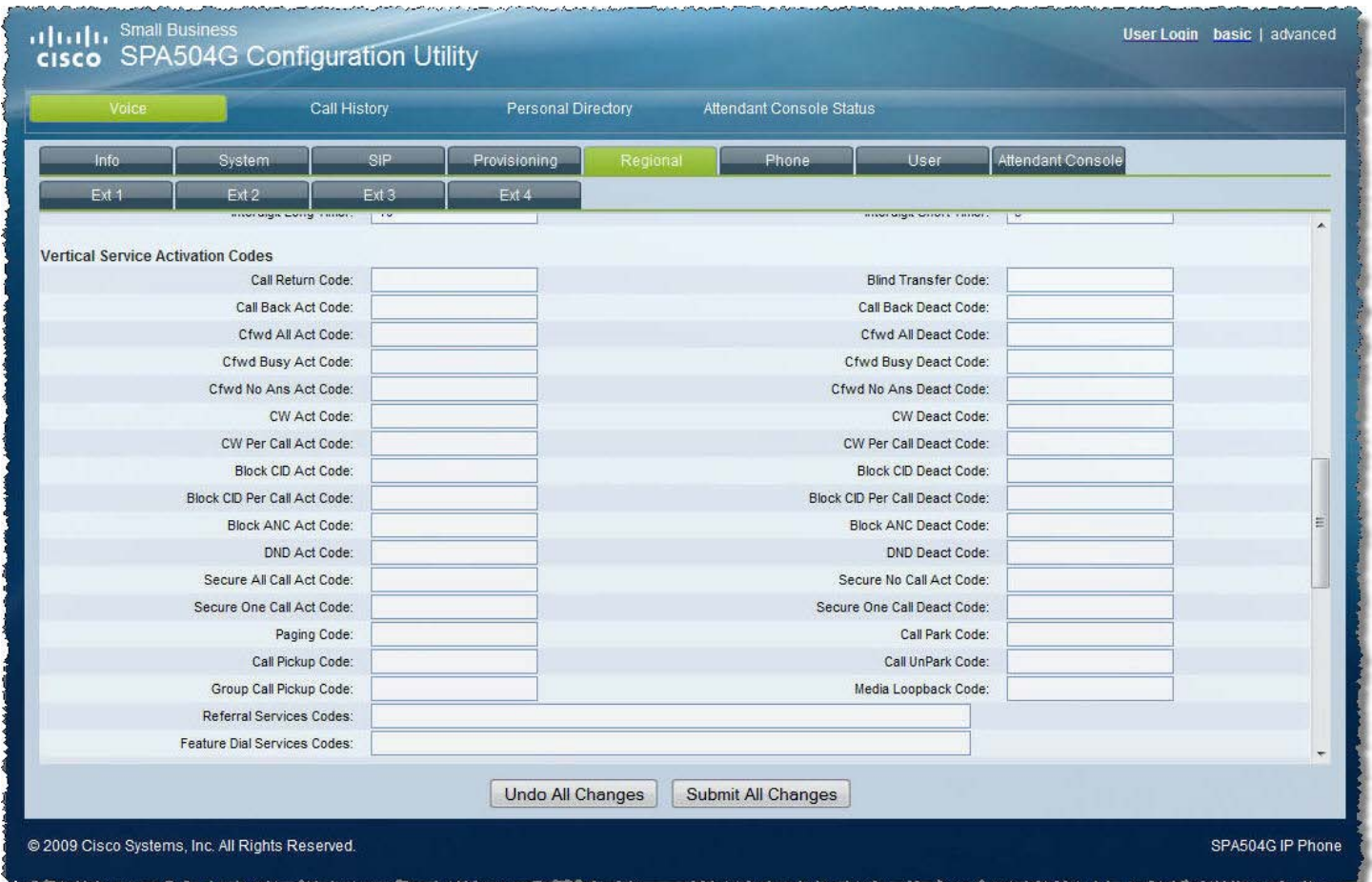
The SPA phones support Vertical Service Activation Codes (star-codes). The phones, by default are configured with a functional set of star-codes. These codes conflict with Broadsoft and must be removed as described in this section.

1. Use a browser to navigate to `HTTP://phoneIP/admin/advanced > Regional > Vertical Service Activation Codes`
2. Notice that a factory-fresh phone has \*68 and \*86 in use.



3. Clear out the Vertical Service Activation Codes. An efficient way to clear the codes is as follows:
  - (1.) Highlight the \*69 code in the Call Return Code : field
  - (2.) Press the space bar once
  - (3.) Press tab to jump to the next field
  - (4.) Repeat.





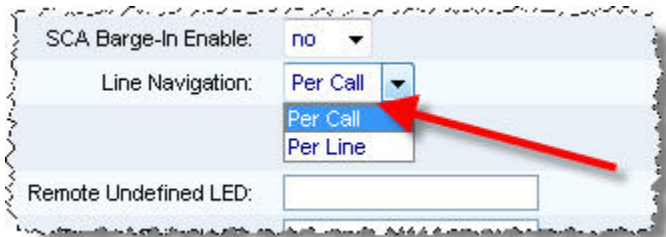
4. Submit All Changes. [No need to Submit All Changes if you're continuing on to step C.

### C. Configure a programmable function key on your phone

The SPA IP phones have programmable soft keys (PSK) that you can configure to suit your needs. The following steps walk you through configuring a PSK to be used for Call Pickup with Broadsoft:

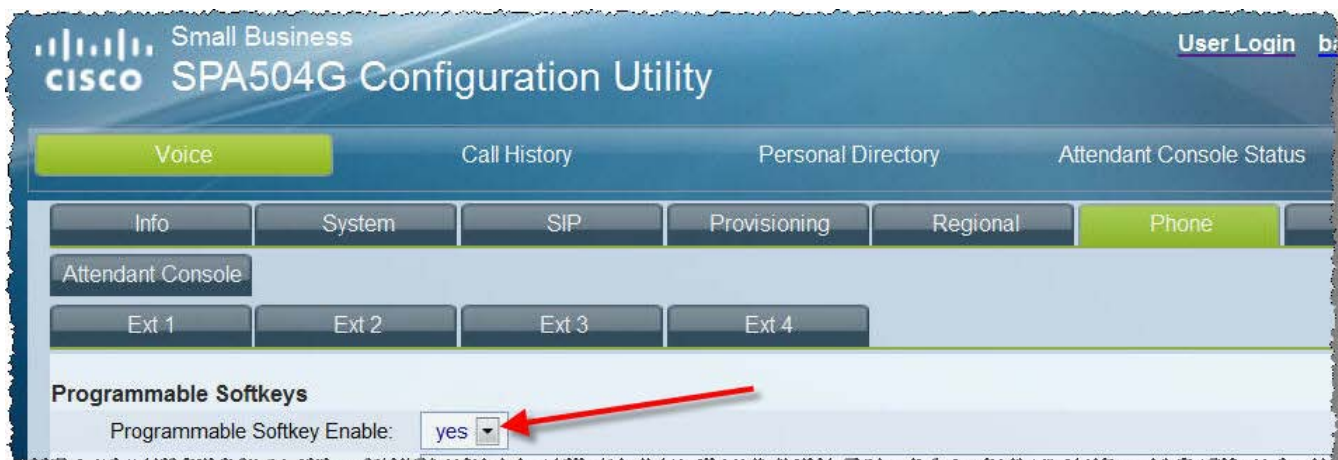
1. Configure Line Navigation to Per Call as follows:

Voice > Miscellaneous Line Key Settings > Line Navigation: **Per Call**



2. Enable Programmable Softkeys:

Voice > Phone > Programmable Softkeys > Programmable Softkey Enable: **yes**



3. PSKs are only active when the phone’s state makes sense for them to be active. For example, it does not make sense to display “answer” when the phone is not ringing. Similarly, it only makes sense to display Park when the phone is busy on a call. Therefore, the phone’s Connected state is where the Park soft key must be defined for Broadsoft. The following steps show step-by-step how to configure call park for Broadsoft:

- a. Insert an appropriate speed dial command into the:

Voice tab > Phone tab > Programmable Softkeys > PSKN field.

- i. Identify an empty programmable soft key (PSK) to use. This example uses PSK2.

In essence, this task describes configuring a speed dial to dial Broadsoft’s FAC when PSK2 is pressed.

The syntax is:

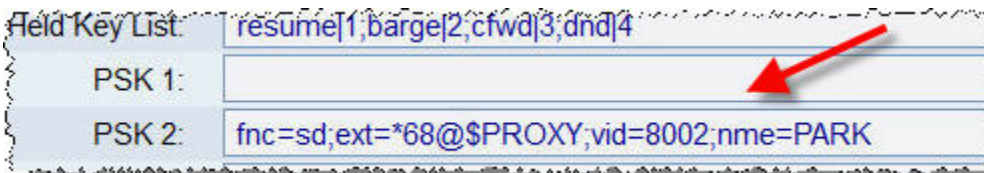
```
fnc=sd;ext=*68@$PROXY;vid=outboundExtensionNumber;nme=PARK
```

Where:

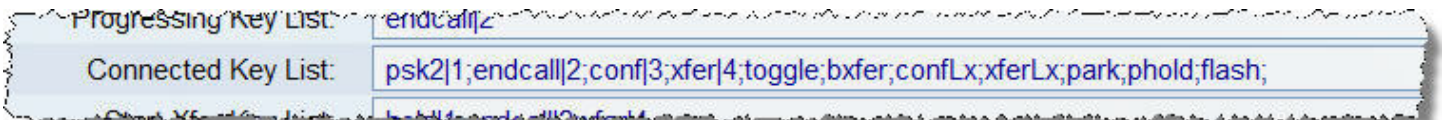
- **fnc**—Function
- **sd**—Speed dial
- **\*68**—Broadsoft’s FAC for call park
- **\$PROXY**—SIP proxy that phone uses. You type \$PROXY and the phone will automatically resolve it
- **vid**—Defines the line to use send the SIP INVITE from
- **outboundExtensionNumber**—This phone’s extension number
- **nme**—Name to display in the soft key label
- **PARK**—Name to display

ii. Insert the completed command in the PSK2 field:

```
fnc=sd;ext=*68@$PROXY;vid=8002;nme=PARK
```



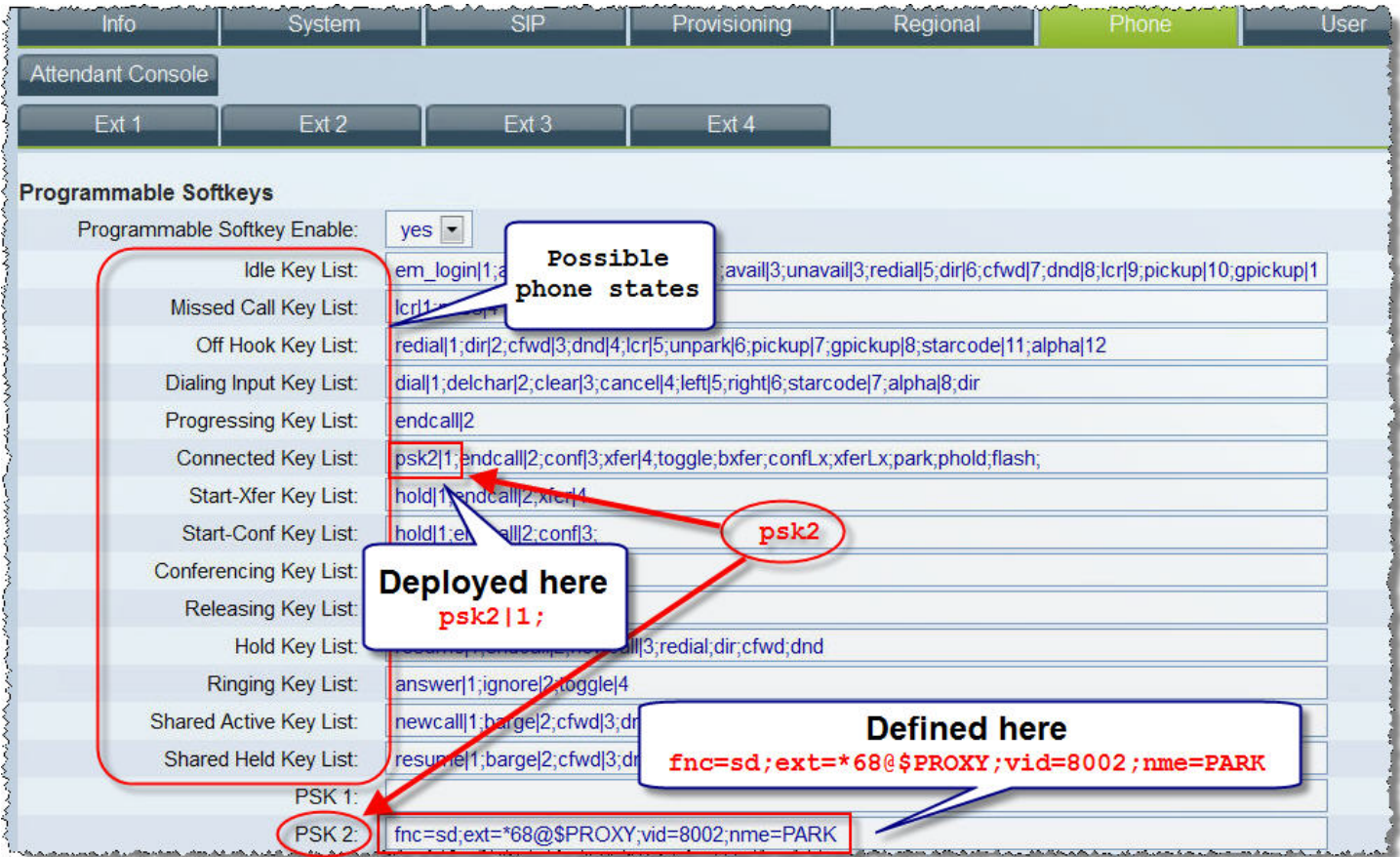
- b. Review the phone’s available states, viewable in the Voice tab > Phone tab > Programmable Softkeys section.
- c. This example demonstrates placing in the Connected Key List, softkey position 1, the PSK2 call park programmable soft key PSK2.



Where psk2|1; represents inserting the PSK2 definition into the first programmable softkey position on the phone, that is, the bottom-most-left position of the phone’s display where:

- **psk2**—PSK2 (programmable speed dial key two’s configuration)
- **|1**—position in which to place the word “PARK” defined by nme in PSK2
- **;** —delimiter character between PSKs for the Connected Key List context





Info System SIP Provisioning Regional **Phone** User

Attendant Console

Ext 1 Ext 2 Ext 3 Ext 4

**Programmable Softkeys**

Programmable Softkey Enable: yes

Idle Key List: em\_login|1; Possible phone states

Missed Call Key List: lcr|1

Off Hook Key List: redial|1;dir|2;cfwd|3;dnd|4;lcr|5;unpark|6;pickup|7;gpickup|8;starcod|11;alpha|12

Dialing Input Key List: dial|1;delchar|2;clear|3;cancel|4;left|5;right|6;starcod|7;alpha|8;dir

Progressing Key List: endcall|2

Connected Key List: psk2|1; endcall|2;conf|3;xfer|4;toggle;bxfer;confLx;xferLx;park;phold;flash;

Start-Xfer Key List: hold|1;endcall|2;xfer|4; psk2

Start-Conf Key List: hold|1;endcall|2;conf|3;

Conferencing Key List: Deployed here psk2 | 1;

Releasing Key List:

Hold Key List: ||3;redial;dir;cfwd;dnd

Ringing Key List: answer|1;ignore|2;toggle|4

Shared Active Key List: newcall|1;barge|2;cfwd|3;dr

Shared Held Key List: resume|1;barge|2;cfwd|3;dr

PSK 1:

PSK 2: fnc=sd;ext=\*68@\$PROXY;vid=8002;nme=PARK Defined here

d. Click Submit All Changes to complete the process.

Refer to the SPA IP Phone Administration Guide for additional information on configuring soft keys. Use the [Documentation Map Document](#) to locate the current version of the Admin Guide.

More detail on Broadsoft are in the Broadsoft PartnerConfigGuide\_Cisco\_500\_Series document.

### Troubleshooting:

1. Do not use phone's park/unpark predefined softkeys. These are not meant for Broadsoft call control.
2. Verify that navigation per call is configured [not per line].
3. Verify that you are using the appropriate Broadsoft FAC.
4. Verify that the phone does not have any conflicting Vertical Service Activation Codes configured.

## Call Flow Overview:

The Broadworks Application Server (AS) sends SIP NOTIFY messages to the phoneB in this scenario to enable the phone to correctly display appropriate line information.

### Receiving a Call

When phoneA **receives a call**, the Broadworks (AS) sends SIP NOTIFY. You can see the state changes in the:

SIP > Message Header > Call-Info section: **appearance-state=progressing appearance-uri=...**

Following is an example:

```
Frame 416: 777 bytes on wire (6216 bits), 777 bytes captured (6216 bits)
```

```
Ethernet II, Src: Cisco_eb:3d:4d (00:1e:4a:eb:3d:4d), Dst: Cisco_d8:cf:99 (00:25:84:d8:cf:99)
```

```
Internet Protocol, Src: 10.10.11.11 (10.10.11.11), Dst: 192.168.2.4 (192.168.2.4)
```

```
User Datagram Protocol, Src Port: sip (5060), Dst Port: sip (5060)
```

```
Session Initiation Protocol
```

```
Request-Line: NOTIFY sip:2142148001_1@192.168.2.4:5060 SIP/2.0
```

```
Message Header
```

```
Via:SIP/2.0/UDP 10.10.11.11;branch=z9hG4bKBroadWorks.2uhv-10.11.10.212V1153-0-240707581-1382825122-1279067191735
```

```
Transport: UDP
```

```
Sent-by Address: 10.10.11.11
```

```
Branch: z9hG4bKBroadWorks.2uhv-10.11.10.212V1153-0-240707581-1382825122-1279067191735
```

```
From: "BS8001" <sip:2142148001_1@myServer.com>;tag=1382825122-1279067191735
```

```
To: "BS8001" <sip:2142148001_1@myServer.com>;tag=c68f4cceb72a8f7
```

```
Call-ID:a9612eda-7054e5b@192.168.2.4
```

```
CSeq:240707581 NOTIFY
```

```
Contact:<sip:myServer.com>
```

```
Call-Info:<sip:10.10.11.11>;appearance-state=progressing;appearance-uri="\Patrick2 Born" <sip:8002@myServer.com;user=phone>" ;appearance-index=1,<sip:10.10.11.11>;appearance-state=idle;appearance-index=*
```

```
Event:call-info
```

```
Subscription-State:active;expires=3570
```

```
Max-Forwards: 10
```

```
Content-Length:0
```

## Busy on a Call

When phoneA is busy on a call, the Broadworks (AS) sends SIP NOTIFY. You can see the state changes in the:

SIP > Message Header > Call-Info section: **appearance-state=progressing appearance-uri=...**

Following is an example:

Frame 454: 772 bytes on wire (6176 bits), 772 bytes captured (6176 bits)

Ethernet II, Src: Cisco\_eb:3d:4d (00:1e:4a:eb:3d:4d), Dst: Cisco\_d8:cf:99 (00:25:84:d8:cf:99)

Internet Protocol, Src: 10.10.11.11 (10.10.11.11), Dst: 192.168.2.4 (192.168.2.4)

User Datagram Protocol, Src Port: sip (5060), Dst Port: sip (5060)

Session Initiation Protocol

Request-Line: NOTIFY sip:2142148001\_1@192.168.2.4:5060 SIP/2.0

Message Header

Via:SIP/2.0/UDP 10.10.11.11;branch=z9hG4bKBroadWorks.2uhv-10.11.10.212V1153-0-240710482-1382825122-1279067191735

Transport: UDP

Sent-by Address: 10.10.11.11

Branch: z9hG4bKBroadWorks.2uhv-10.11.10.212V1153-0-240710482-1382825122-1279067191735

From: "BS8001" <sip:2142148001\_1@myServer.com>;tag=1382825122-1279067191735

To: "BS8001" <sip:2142148001\_1@myServer.com>;tag=c68f4cceb72a8f7

Call-ID:a9612eda-7054e5b@192.168.2.4

CSeq:240710482 NOTIFY

Contact:<sip:myServer.com>

Call-Info:<sip:10.10.11.11>;**appearance-state=active**;appearance-uri="\Patrick2 Born\" <sip:8002@myServer.com;user=phone>;appearance-index=1,<sip:10.10.11.11>;appearance-state=idle;appearance-index=\*

Event:call-info

Subscription-State:active;expires=3567

Max-Forwards: 10

Content-Length:0

## Call on Hold

When phoneA places a call on hold, the Broadworks (AS) sends SIP NOTIFY. You can see the state changes in the:

SIP > Message Header > Call-Info section: **appearance-state= held appearance-uri=...**

Following is an example:

Frame 515: 770 bytes on wire (6160 bits), 770 bytes captured (6160 bits)

Ethernet II, Src: Cisco\_eb:3d:4d (00:1e:4a:eb:3d:4d), Dst: Cisco\_d8:cf:99 (00:25:84:d8:cf:99)

Internet Protocol, Src: 10.10.11.11 (10.10.11.11), Dst: 192.168.2.4 (192.168.2.4)

User Datagram Protocol, Src Port: sip (5060), Dst Port: sip (5060)

Session Initiation Protocol

Request-Line: NOTIFY sip:2142148001\_1@192.168.2.4:5060 SIP/2.0

Message Header

Via:SIP/2.0/UDP 10.10.11.11;branch=z9hG4bKBroadWorks.2uhv-10.11.10.212V1153-0-240714881-1382825122-1279067191735

Transport: UDP

Sent-by Address: 10.10.11.11

Branch: z9hG4bKBroadWorks.2uhv-10.11.10.212V1153-0-240714881-1382825122-1279067191735

From: "BS8001" <sip:2142148001\_1@myServer.com>;tag=1382825122-1279067191735

To: "BS8001" <sip:2142148001\_1@myServer.com>;tag=c68f4cceb72a8f7

Call-ID:a9612eda-7054e5b@192.168.2.4

CSeq:240714881 NOTIFY

Contact:<sip:myServer.com>

Call-Info:<sip:10.10.11.11>;**appearance-state=held**;appearance-uri="\Patrick2 Born\" <sip:8002@myServer.com;user=phone>";appearance-index=1,<sip:10.10.11.11>;appearance-state=idle;appearance-index=\*

Event:call-info

Subscription-State:active;expires=3563

Max-Forwards: 10

Content-Length:0



## Call Over

When phoneA ends the call, the Broadworks (AS) sends SIP NOTIFY. You can see the state changes in the:

SIP > Message Header > Call-Info section: **appearance-state=idle;appearance-index=\***

Following is an example:

Frame 601: 631 bytes on wire (5048 bits), 631 bytes captured (5048 bits)

Ethernet II, Src: Cisco\_eb:3d:4d (00:1e:4a:eb:3d:4d), Dst: Cisco\_d8:cf:99 (00:25:84:d8:cf:99)

Internet Protocol, Src: 10.10.11.11 (10.10.11.11), Dst: 192.168.2.4 (192.168.2.4)

User Datagram Protocol, Src Port: sip (5060), Dst Port: sip (5060)

Session Initiation Protocol

Request-Line: NOTIFY sip:2142148001\_1@192.168.2.4:5060 SIP/2.0

Message Header

Via:SIP/2.0/UDP 10.10.11.11;branch=z9hG4bKBroadWorks.2uhv-10.11.10.212V1153-0-240720591-1382825122-1279067191735

Transport: UDP

Sent-by Address: 10.10.11.11

Branch: z9hG4bKBroadWorks.2uhv-10.11.10.212V1153-0-240720591-1382825122-1279067191735

From: "BS8001" <sip:2142148001\_1@myServer.com>;tag=1382825122-1279067191735

To: "BS8001" <sip:2142148001\_1@myServer.com>;tag=c68f4cceb72a8f7

Call-ID:a9612eda-7054e5b@192.168.2.4

CSeq:240720591 NOTIFY

Contact:<sip:myServer.com>

Call-Info:<sip:10.10.11.11>;**appearance-state=idle**;appearance-index=\*

Event:call-info

Subscription-State:active;expires=3557

Max-Forwards: 10

Content-Length:0

<end>