

**Cisco Small Business Pro**  
**Smart Business Communication System**  
**Technical Enablement Labs**



UC 540/560 Hybrid Key System

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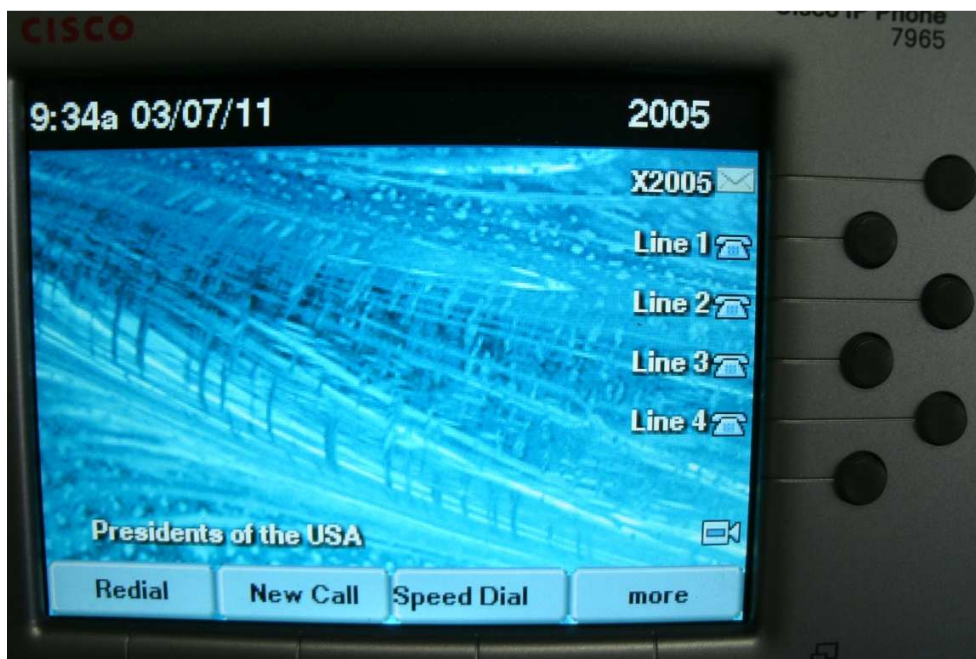
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## Overview

The lab assumes that you have completed the TSW with a base config and wish to add line presence to the UC500 platform. This lab will walk you thru the adding of key system functionality to a PBX UC500 install. The platform normally likes to be a KEY or PBX configured system. This will allow you to have all the functionality of the PBX, but show line “Presence” usage on the phones.

The limitations that you will run into are the following things. You must have more buttons then FXO lines you have on the system. An example would be 4 FXO lines would require a 5 button phone, a system would require 9 buttons for 8 FXO lines. The ability to add a side car to the SPA500 series phones will allow you to achieve the desired result. The platform has 4 FXO lines built into the system and the ability to add a VWIC-2 card to add 4 more FXO Lines.

For the purpose of the lab, we are going to show a base line TSW install and add the line presence to 3 phones. My base install is on a UC540 platform ships from the factory with 8 permanent licenses installed and active. This is a base line install and in no way limits the amount of phones that can have line presence on them. The limitations come from the model of phone you chose for the install.



## Information Required

You will need the following information for the install.

1. A base configured UC500 series telephone system.
2. A minimum of two 5 button phones
3. Admin rights to the unit

## CONFIGURATION

Once the unit is up and running, we need to add 4 extensions for routing purposes only. The UC500 TSW will set up a unit with extensions 3001-3004 for the analog FXS ports. I chose 4 digit extensions on my setup. We are going to use the extensions 3020 to 3024 for the purpose of the lab.

The image shows the 'Users and Phones' configuration window in Cisco Unified Communications Manager. The 'Hostname' is set to 'Dunlap\_UC\_540'. The 'Analog Extensions' tab is selected, showing a table of configured extensions. A message indicates that analog extensions are available for ports configured as 'Common Area Phone' or 'Fax'.

Hostname:

Tab: **Analog Extensions**

FXS Ports

ⓘ Analog Extensions are available for ports that have their role configured as "Common Area Phone" or "Fax" in Telephony > Ports and Trunks > FXS Ports.

Port	Role	Extension	Block Restricted	Numbers	Permissions
0/0/1	Common Area Phone	3002	<input type="checkbox"/>		unrestricted ▼
0/0/2	Common Area Phone	3003	<input type="checkbox"/>		unrestricted ▼
0/0/3	Common Area Phone	3004	<input type="checkbox"/>		unrestricted ▼

Save Settings

OK Refresh Help

The TSW that I used had (4 digits) extensions. The first extension (2000) for the starting phone extensions and we wanted to stay away from the usable extensions that a person may assign to an end user. It is always a good practice to set this as a company standard for troubleshooting help later in the install.

Users and Phones

Devices

Hostname: Dunlap\_UC\_540

User Extensions Floating Extensions Extension Mobility Analog Extensions

MAC Address	Phone Type	First Extension	First Name	Last Name	User ID
001C.C4D2.6388	CIPC	2006	Laptop	Dunlap	ldunlap
001D.E5E8.9DF4	524G	2060	John	Adams	jadams
68EF.BD28.EDCE	525G	2025	Teddy	Roosevelt	trosevelt
8843.E157.ED8C	504G	2040	US	Grant	ugrant
5475.D02A.BC1D	301	2030	Franklin	Roosevelt	frossevelt
68B5.995A.E244	CIPC	2008	winseven	laptop	ooffice
0023.EBED.1FB8	525G/5005	2000	Front	Desk	fdesk
0030.94C2.9AC2	7960	2015	Ben	Franklin	bfranklin
0014.1C48.E6A4	7960	2035	Abe	Lincoln	alincolin
ECC8.82B0.B1F9	7965	2005	Dave	Dunlap	ddunlap
0023.331B.BCCB	7945	2010	George	Washington	gWASHINGTON
1CDF.0F0023.331B.BCCB	925	2050	Ronald	Reagen	rreagen
000C.CEA2.147F	7940	2020	George	Bush	gbush
68EF.BDB3.8978	7925	2045	Barak	Obama	bobama
001B.D52C.5452	7945	2055	John	Kennedy	jkennedy


Total Rows: 16

Add... Edit Delete... Import

OK Refresh Help

The first step is to log into the main phone a receptionist phone. In this example that would be extension 2000 (user) front desk. I highlight it from the Users and Phones section of CCA and click edit.

You will see the following




MAC Address: 0023.EBED.1FB8  
Phone Type: 525G  
Expansion Module: 5005  
☐ Use as Teleworker Phone

**Extension Mobility**

To enable Extension Mobility, go to "Extension Mobility>Phone Profile" tab to define Phone Profiles. The selected Phone Profile will override and be shown on the button assignment table below.

☐ Enable Extension Mobility

Associate Phone Profile to this phone: Select Phone Profile



First Name: Front  
Last Name: Desk  
User ID: fdesk  
Password: \*\*\*\*\*

Button Assignments

Speed Dial

Line	Type	Extension	Label	Mailbox
1	Normal	2000	2000	<input checked="" type="checkbox"/>
2	None	n/a	n/a	<input type="checkbox"/>
3	None	n/a	n/a	<input type="checkbox"/>
4	None	n/a	n/a	<input type="checkbox"/>
5	None	n/a	n/a	<input type="checkbox"/>
6	None	n/a	n/a	<input type="checkbox"/>
7	None	n/a	n/a	<input type="checkbox"/>
8	None	n/a	n/a	<input type="checkbox"/>
9	None	n/a	n/a	<input type="checkbox"/>
10	None	n/a	n/a	<input type="checkbox"/>
11	None	n/a	n/a	<input type="checkbox"/>
12	None	n/a	n/a	<input type="checkbox"/>

Please select a line from the button table.

OK

Cancel

Help



I add the following items to button two of the phone

**Edit Phone**

**Phone Information**

MAC Address: 0023.EBED.1FB8  
 Phone Type: 525G  
 Expansion Module: 5005  
☐ Use as Teleworker Phone

**User Information**

First Name: Front  
 Last Name: Desk  
 User ID: fdesk  
 Password: \*\*\*\*\*

**Extension Mobility**

To enable Extension Mobility, go to "Extension Mobility>Phone Profile" tab to define Phone Profiles. The selected Phone Profile will override and be shown on the button assignment table below.

☐ Enable Extension Mobility  
 Associate Phone Profile to this phone: Select Phone Profile

**Button Assignments**

Line	Type	Extension	Label	Mailbox
1	Normal	2000	2000	<input checked="" type="checkbox"/>
2	Share	3020	Line 1	<input checked="" type="checkbox"/>
3	Share	3021	Line 2	<input type="checkbox"/>
4	Share	3022	Line 3	<input type="checkbox"/>
5	Share	3023	Line 4	<input type="checkbox"/>
6	None	n/a	n/a	<input type="checkbox"/>
7	None	n/a	n/a	<input type="checkbox"/>
8	None	n/a	n/a	<input type="checkbox"/>
9	None	n/a	n/a	<input type="checkbox"/>
10	None	n/a	n/a	<input type="checkbox"/>
11	None	n/a	n/a	<input type="checkbox"/>
12	None	n/a	n/a	<input type="checkbox"/>

**Button 2**

Button Type: Share

**Parameters**

Call Hold Alert

Extension: 3020  
 Button Label: Line 1  
 Shared Name: 555-3020  
☒ Enable Voicemail  
☒ Block Restricted Numbers  
 Permissions: international  
 Call Forward Busy: 3021  
 Call Forward No Answer: 63020  
 CFNA Timeout (seconds): 20

OK Cancel Help

You must type in the extension number you want to use in the extension field; it will not be filled with any useable information. I chose to have the button label to read "LINE 1". I then set the shared name to be the phone number of that button.

**Button 2**


Button Type: Share

**Parameters**

Call Hold Alert

Extension: Edit or select  
 Button Label:  
 Shared Name:

Repeat this for each of the four buttons below the first button, being sure to change the routing of the CF busy and No Answer to the right locations. You will notice that my buttons roll over on busy to the next button and forward to 63020 VM for the main button.



MAC Address: 0023.EBED.1F88  
Phone Type: S25G  
Expansion Module: 5005  
☐ Use as Teleworker Phone


Extension Mobility

To enable Extension Mobility, go to "Extension Mobility>Phone Profile" tab to define Phone Profiles. The selected Phone Profile will override and be shown on the button assignment table below.

☐ Enable Extension Mobility

Associate Phone Profile to this phone: Select Phone Profile

User Information



First Name: Front  
Last Name: Desk  
User ID: fdesk  
Password: \*\*\*\*\*

Button Assignments

Line	Type	Extension	Label	Mailbox
1	Normal	2000	2000	<input checked="" type="checkbox"/>
2	Share	3020	Line 1	<input checked="" type="checkbox"/>
3	Share	3021	Line 2	<input type="checkbox"/>
4	Share	3022	Line 3	<input type="checkbox"/>
5	Share	3023	Line 4	<input type="checkbox"/>
6	None	n/a	n/a	<input type="checkbox"/>
7	None	n/a	n/a	<input type="checkbox"/>
8	None	n/a	n/a	<input type="checkbox"/>
9	None	n/a	n/a	<input type="checkbox"/>
10	None	n/a	n/a	<input type="checkbox"/>
11	None	n/a	n/a	<input type="checkbox"/>
12	None	n/a	n/a	<input type="checkbox"/>

Button 5

Button Type: Share

Parameters

Call Hold Alert

Extension: 3023  
Button Label: Line 4  
Shared Name: 555-3023  
☐ Enable Voicemail  
☒ Block Restricted Numbers  
Permissions: international  
Call Forward Busy: 3020  
Call Forward No Answer: 63020  
CFNA Timeout (seconds): 20

OK

Cancel

Help

Be sure to add Call Hold Alert to all the shared extensions.

Button 2

Button Type: Share

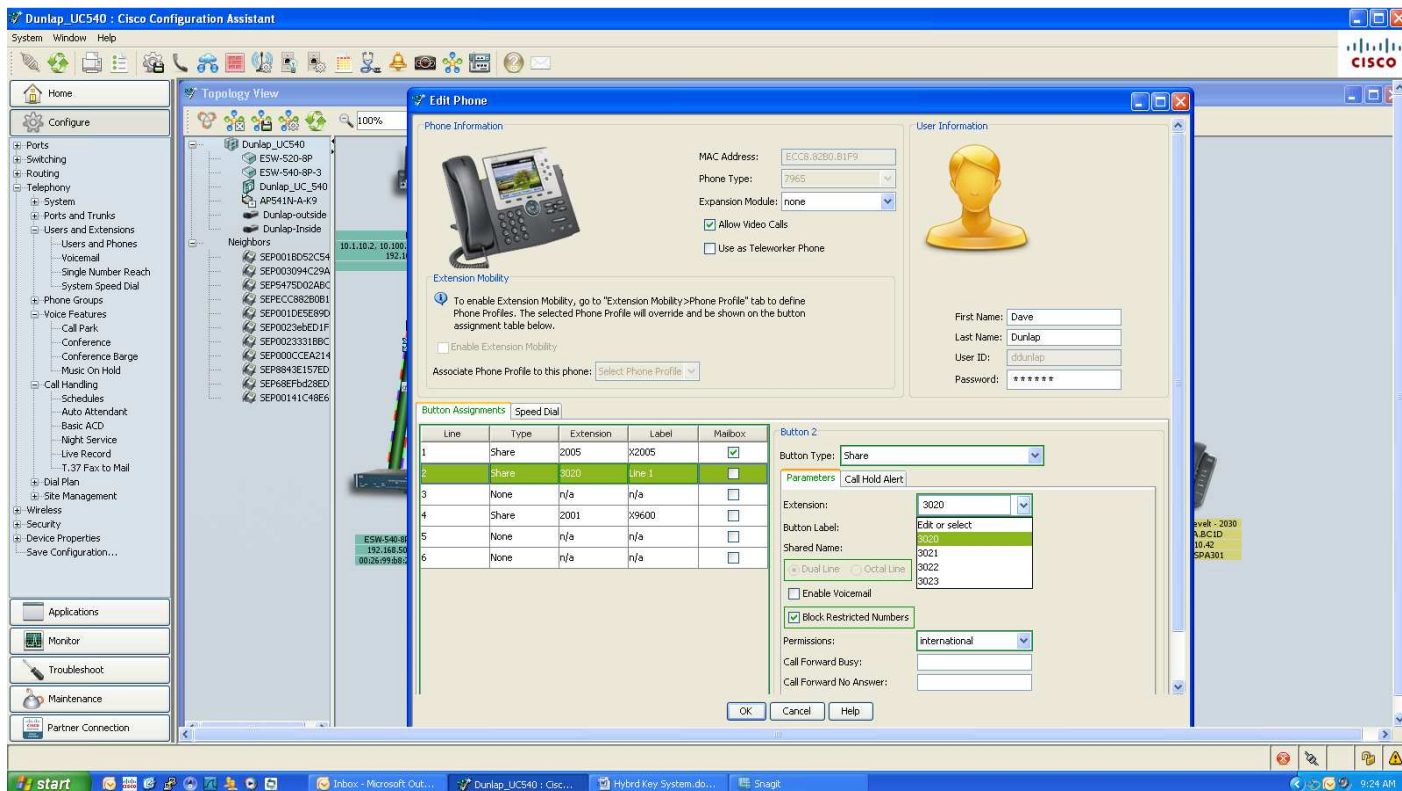
Parameters

Call Hold Alert

Call Hold Alert: When idle or alert shared  
Timeout (15 - 300 secs): 15



Click on save and return to the previous screen. You then choose the next phone you want to configure. This is where it starts to get very easy. Change it by using the drop down arrow on the extension after making the button a shared line. Rinse and repeat for the all the phones and buttons you need to do.



**Edit Phone**

**Phone Information**

MAC Address: ECC8.8280.81F9

Phone Type: 7965

Expansion Module: none

☒ Allow Video Calls

☐ Use as Teleworker Phone

**Extension Mobility**

To enable Extension Mobility, go to "Extension Mobility>Phone Profile" tab to define Phone Profiles. The selected Phone Profile will override and be shown on the button assignment table below.

☐ Enable Extension Mobility

Associate Phone Profile to this phone: Select Phone Profile

**User Information**

First Name: Dave

Last Name: Dunlap

User ID: ddunlap

Password: \*\*\*\*\*

**Button Assignments** **Speed Dial**

Line	Type	Extension	Label	Mailbox
1	Share	2005	X2005	<input checked="" type="checkbox"/>
2	Share	3020	Line 1	<input type="checkbox"/>
3	Share	3021	Line 2	<input type="checkbox"/>
4	Share	3022	Line 3	<input type="checkbox"/>
5	Share	3023	Line 4	<input type="checkbox"/>
6	None	n/a	n/a	<input type="checkbox"/>

**Button 5**

Button Type: Share

Parameters **Call Hold Alert**

Extension: 3023

Button Label: Line 4

Shared Name: 555-3023

☒ Dual Line ☐ Octal Line

☐ Enable Voicemail

☒ Block Restricted Numbers

Permissions: international

Call Forward Busy: 3020

Call Forward No Answer: 63020

OK Cancel Help

The phones should have the following (Look Like) buttons after you save them.





Now all that to do is to set the incoming dial plan to the right numbers. Click on Incoming Dial plan and set the FXO ports to go to the extensions we setup for the shared lines.

Incoming Dial Plan				
Devices				
Hostname: Dunlap_UC_540				
Incoming FXO Calls Direct Dialing				
Description:	Trunk	Destination Type	Destination	
CO Line - 0/1/0	4 FXO-0/1/0	OPERATOR	3020	
4 FXO-0/1/1	4 FXO-0/1/1	OPERATOR	3021	
4 FXO-0/1/2	4 FXO-0/1/2	OPERATOR	3022	
4 FXO-0/1/3	4 FXO-0/1/3	OPERATOR	3023	

After setting the incoming dial plan, you should be able to call the FXO #, answer it on the first phone, and place it on hold. Then pick up the call from any other phone by pressing the flashing appropriate line button.

\*\*\*\* NOTE \*\*\*\*

This configuration will still require an end user to dial a “9” or steering digit to make an outbound call using the best cost dialing plan. This will use the ability of the system to direct the call to the predetermined provider (SIP/T1) or the FXO lines.