

Cisco Configuration Assistant 1.9 Out-of-Band Configuration Guidelines

This application note provides guidelines on how to configure advanced UC500 features outside Cisco Configuration Assistant (CCA) using tools such as the Cisco IOS command-line interface (CLI) and Cisco Unity Express (CUE) GUI.

These provisioning methods are collectively referred to as out-of-band (OOB) configuration. This guide also describes OOB configuration that can be recognized and read in by CCA. The information in this document applies to CCA Version 1.9 and Cisco SBCS software package 7.0.2 or below.

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Scope and Assumptions

The information in this application note is intended for use by Cisco SMB Select-certified partners. It is assumed that administrator users are familiar with configuration of voice, wireless, routing, switching, and security features on the Cisco Smart Business Communications System (SBCS) using CCA and are also familiar with the Cisco IOS command-line interface and Cisco Unity Express (CUE) Graphical User Interface.

The information in this document applies to CCA Version 1.9 and Cisco SBCS software package version 7.0.2 and below.

Note: In general, configuration on the UC500 using IOS CLI for features already supported in CCA is not recommended. For a list of features supported in CCA, refer to the *Cisco Smart Business Communications Systems 1.4 Feature Reference Guide*, available on Cisco.com at the following location:

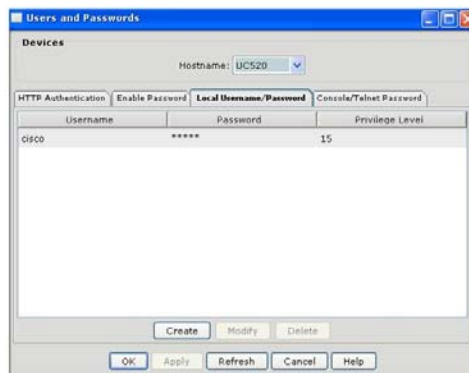
http://www.cisco.com/web/partners/downloads/sell/smb/sbcs_cg.pdf

Accounts and Logins

The Cisco IOS CLI shares the same username and password as the CCA administrator account.

On the UC500, the default administrator username is **cisco** and the default password is **cisco** for both the IOS CLI and Cisco Unity Express GUI.

The UC500 administrator user account and password should only be changed through CCA. This can be done through the **Device Properties > Users and Passwords** window, as in the following figure. A new administrator account must be assigned a level 15 privilege level to be able to use CCA for configuration. Users with lower level privilege only have read-only access through CCA.



The login banner configuration on the UC500 and SR500 is overwritten by CCA.

Voice Parameters

This section covers out-of-band configuration guidelines that apply to voice parameters that are configurable via CCA.

Dial Plan — Configuring Dial Peers

Dial-peers are used to define the dial plan on the UC500. Administrators should not edit or remove dial-peers reserved for CCA. Administrators can use dial-peers in the OOB range to apply custom dial-peer configurations using IOS CLI. Dial-peers created in the OOB range will not be overwritten or altered by CCA.

The following table lists dial-peer tag ranges that are reserved for use by CCA.

OOB dial-peers should be created in the **5000 - 5999** range.

Description	Dial-peer Tags
FXS STCAPP	1 - 4
MOH Live feed	5
Inbound Dial Plan	6 - 49
Outbound Dial Plan	50 - 999
SIP Trunk	1000 - 1099
Inbound FXS	1100 - 1999
Cisco Unity Express	2000 - 2500
Legacy OOB Range	2501 - 2999
Inbound Call routing	3000 - 4999

For more information on IOS CLI dial-peer configuration, visit the following URL:

http://www.cisco.com/en/US/docs/ios/voice/dialpeer/configuration/guide/12_4t/vd_12_4t_book.html

Translation Profiles and Rules for Digit Manipulation

Translation profiles and rules are used for digit manipulation. These translations are typically associated with dial-peers.

The following table lists translation profiles that are created by CCA:

- Translation profiles that do not match the names below can be created using OOB tools without impacting CCA.
- Translation profiles that match the names listed below are reserved for CCA and must not be modified using OOB tools.

Voice Translation Profile Name	Description
OUTGOING_TRANSLATION_PROFILE	Translating outgoing digits from PSTN
CALLER_ID_TRANSLATION_PROFILE	Translating Caller-ID
CallBlocking	Call blocking
AA_Profile	Translating Auto Attendant PSTN number
VM_Profile	Translating Voicemail PSTN number
SIP_Incoming	Used by SIP trunk for translating inbound VoIP calls
SIP_Passthrough	Used by SIP trunk for translating inbound VoIP calls to be passed to CUE
PSTN_Outgoing	Used by SIP trunk for translating outbound and redirected VoIP calls
PSTN_CallForwarding	Used by SIP trunk for translating redirected VoIP calls

The following voice translation rules are reserved for CCA and must not be modified or deleted using Cisco IOS CLI.

Voice Translation Rule	Tag
Outgoing Dial Plan Caller ID translation	1111
Outgoing Dial Plan SIP Trunk Access Code Strip	1112
Voicemail PSTN Translation	2000
AA PSTN Translation	2001
Call Block	2222
SIP Trunk	410, 411, 412

Voice translation rules from 10001 and above can be added through IOS CLI without impacting CCA. Voice translation rules in this range will not be deleted or overwritten by CCA.

For more information on IOS CLI voice translation profile configuration, visit the following URL:

http://www.cisco.com/en/US/tech/tk652/tk90/technologies_configuration_example09186a00803f818a.shtml

Trunk Group Names

The trunk groups maintained and applied by CCA to the voice ports and dial-peers should NOT be modified or deleted using OOB methods:

- ALL_FXO — all FXO ports on the system are assigned to this trunk group.
- ALL_BRI — all BRI ports on the system are assigned to this trunk group.
- ALL_T1E1 — all T1/E1 ports on the system are assigned to this trunk group.

Trunk preferences are maintained and applied by CCA as shown in the following table:

Trunk Type	Trunk Group	Preference
PSTN	ALL_BRI	4
PSTN	ALL_FXO	5
PSTN	ALL_T1E1	3
SIP	<Service Provider Name>	1, if SIP then PSTN is selected for the Trunk List Preference in CCA or 6, if PSTN then SIP is selected for the Trunk List Preference in CCA

dial-peer Class-of-Restriction (CoR) List Names

All CoR list names must be unique. The CoR lists maintained and applied by CCA to the ephone-dn and dial-peers should not be modified or deleted using OOB methods. By default, CCA generates and maintains the following CoR list names:

- call-internal
- call-local
- call-local-plus
- call-national
- call-national-plus
- call-international

- call-emergency
- call-toll-free
- user-internal
- user-local
- user-local-plus
- user-national
- user-national-plus
- user-international

Members of the above lists are defined under `dial-peer cor custom`, as follows:

- member-internal
- member local
- member local-plus
- member national
- member national-plus
- member international

Configuring SCCP/SPCP Phone and System Extensions (ephone-dn)

ephone-dn's are used to define SCCP/SPCP phone extensions as well as system extensions for features such as call park, conferencing, intercom, paging, and voicemail MWI.

The reserved ranges of ephone-dn's vary according to the number of users your UC500 supports. The following table lists the reserved CCA ephone-dn ranges according to the number of user licenses applied to the UC500. The allocation shown in the table assumes approximately 2 - 3 extensions are needed per user license.

Features	Reserved CCA ephone-dn Ranges According to Number of Licensed Users					
	8	16	24	32	48	64
Paging	1 - 4	1 - 4	1 - 4	1 - 4	1 - 4	1 - 4
FXS	5 - 8	5 - 8	5 - 8	5 - 8	5 - 8	5 - 8
Music on Hold	9	9	9	9	9	9
User extensions	10 - 25	10 - 41	10 - 57	10 - 73	10 - 117	10 - 165
Unassigned	-	42-48	58 - 80	74 - 80	118 - 127	166 - 175
Telephony Features	26 - 54	49 - 86	81 - 126	81 - 158	128 - 222	176 - 286
MWI OFF	55	87	127	159	223	287
MWI ON	56	88	128	160	224	288

For UC500 platforms that support 16 or more users, OOB ephone-dn's should be created in the **Unassigned** range, as shown in the above table.

For all platforms, the reserved ranges for Telephony Features cover any combination of CO trunk lines, Ad Hoc conferencing, Call Park, Intercom, SIP trunk registrations, and Live Record features. Not all of these telephony features are available in all modes (PBX or key system). Additional OOB configuration can be made in the range shown for Telephony Features if some or all of these features are not used.

CCA can import ephone-dn configurations only if the ephone-dn is assigned to an ephone AND the exact CLI convention shown below is followed. ephone-dn's that are not assigned to an ephone are not recognized by CCA.

```
ephone-dn xx dual
  number yyy no-reg primary
  description firstname lastname
  name firstname lastname
```

Where **xx** is the ephone-dn tag and **yyy** is the extension number.

The following example shows a sample configuration for an ephone-dn that can be imported into CCA.

```
ephone-dn 20 dual
  number 277 no-reg primary
  description Jane Smith
  name Jane Smith
ephone 5
  button 1:20
```

Configuring SCCP/SPCP Phone Parameters (ephone)

ephones are used to define parameters for an SCCP/SPCP IP phone. CCA does not reserve ephones for specific use. In general, CCA will be able to import ephone configuration, with the following caveats:

1. Cisco 7931G IP phones are configured by default with ephone-template 15, which is reserved for 7931 phones.
 - ephone-template 15 through 20 are reserved for use by CCA and should not be modified with OOB settings.
 - CCA allows Cisco 7931G phones to be configured with an ephone-template with a tag other than 15.
2. In versions of CCA prior to 1.9, CCA always allocates button 2 to an intercom. If button 2 on an ephone is allocated for a different function using CCA or OOB configuration, an intercom button cannot be configured through CCA for that phone.
3. In CCA 1.9, any button can be assigned to an intercom except button 1. Overlays are not supported for button 1.
4. Two DNs with the same number are not supported.
5. ephones and ephone-dn's used for Extension Mobility do not appear in CCA 1.9. CCA does not overwrite or modify any phones configured for Extension Mobility using OOB methods.
6. CCA does not support multiple ephones with the same ephone-dn configured on the 1st button.

For example, the following ephone configuration is not supported with CCA.

```
ephone 1
  button 1:10

ephone 2
  button 1:10
```

Note: Phone type 7925 is not supported in CCA 1.9.

Defining SIP Phone Extensions (Voice Register DNs)

Voice Register DNs are used to define SIP phone extensions. The reserved ranges for voice register DNs vary according to the number of users your UC500 supports.

The following chart lists CCA voice register dn ranges according to the number of user licenses applied to the UC500. OOB voice register DNs should be created in the **Unassigned** range, as shown in the table.

	Voice Register DN Ranges by Number of User Licenses					
	8	16	24	32	48	64
Reserved by CCA	1 - 46	1 - 78	1 - 118	1 - 150	1 - 214	1 - 278
Unassigned	47 - 56	79 - 88	119 - 128	151 - 160	215 - 224	279 - 288

Configuring SIP Phone Parameters (Voice Register Pool)

Voice register pools are used to define parameters for a SIP IP phone. CCA does not reserve voice register pools for specific use.

- CCA will enable SIP CUCME only if a supported SIP phone is configured in CCA.
- Model 3911 and 3951 are the only SIP phones supported by CCA.
- Generic SIP phones configured using OOB methods are recognized and their configuration is read-in by CCA, but will not be configurable in CCA. As shown below, their configuration is read-only in CCA:

Mac Addr	Phone T...	Primary ...	LastName	FirstName	UserID	Password	More...
B8FA.CDC8.000C	anl	301	Analog	PhoneA	ana	***	More...
B8FA.CDC8.0001	anl	302	Analog	PhoneB	anb	***	More...
B8FA.CDC8.0002	anl	303	Analog	PhoneC	anc	***	More...
B8FA.CDC8.0003	anl	304	Analog	PhoneD	and	***	More...
0012.0034.847C	7912	202	a	ip	aip	***	More...
001D.E5EA.A50A	521G	201	b	ip	bip	***	More...
0017.5A85.0AD0	7941	204	d	ip	cip	***	More...
0018.1815.8DCB	7931	222	d	ip	dip	***	More...
001E.4A3F.6886	7921	205	e	ip	eip	***	More...
AAAA.BBBB.CCC		256	a	bb	as		More...
0000.0000.0001	3911	255	a	bb	as		More...

For more information on IOS CLI SCCP/SPCP/SIP IP phone and directory number configuration, visit the following URL:

http://www.cisco.com/en/US/docs/voice_ip_comm/cucme/admin/configuration/guide/cmehbasic.html

Configuring Hunt Groups (ephone-hunt)

ephone-hunt is used to configure hunt-groups. The following table shows which ephone-hunt tag ranges are reserved by CCA and which are not.

Hunt Group Configuration (ephone-hunt)	Tag Range
Reserved by CCA	1 - 19
Unassigned	20 - 49
Reserved by CCA	50-100

As shown in the above table, ephone-hunt tags in the open range (20 - 49) can be added through IOS CLI without impacting CCA. ephone-hunt tags in this range will not be deleted or overwritten by CCA.

Configuring Parallel Hunt Groups (voice hunt-group)

Use voice hunt-group to configure parallel hunt groups (“call blast” groups). The following table shows which voice hunt-group tags are reserved by CCA and which are not.

Parallel Hunt Group Configuration (voice hunt-group)	Tag Range
Reserved by CCA	1 - 90
Unassigned	91 - 100

voice hunt-group tags in the unassigned range (91 - 100) can be added through IOS CLI without impacting CCA; voice hunt-group tags in this range will not be deleted or overwritten by CCA.

For more information on IOS CLI hunt-group configuration, visit the following URL:

http://www.cisco.com/en/US/docs/voice_ip_comm/cucme/admin/configuration/guide/cmecover.html#wp1118926

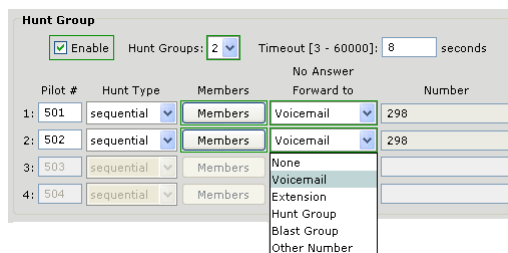
Cisco Unity Express (CUE) — Configuring Voicemail and Auto Attendant

Cisco Unity Express (CUE) is the application that resides on the UC500 that provides voicemail and Auto Attendant (AA functionality).

The following guidelines apply when combining CCA configuration with OOB management through Cisco IOS CLI:

- User and mailbox add/delete/modify must be performed through CCA only.
- CCA creates a GDM (general delivery mailbox) for each hunt group and call blast group created through CCA that is configured to forward to voice mail.

Call forwarding for hunt groups and call blast groups are configured on the Voice Features tab in the Voice window (Configure > Telephony > Voice). For example, for hunt groups:



- CCA creates groups named hunt1, hunt2, hunt3, or hunt4 for hunt groups that have GDM (general delivery mailbox) enabled, as shown in the following example CUE screen.



- The following built-in Auto Attendant scripts should be edited ONLY through CCA:
 - Default AA (aa_sbc_v02.aef)
 - AA Transfer (aa_transfer2.aef and aa_transfer.aef)
- General delivery mailboxes (GDMs) created for other purposes, such as shared line and non-CCA hunt groups, can be configured using OOB methods.
- Custom AA scripts may be added or modified through OOB methods
- Cisco Unity Express features currently not supported by CCA, such as fax and message notification, may be configured using OOB methods.

For more information on CUE configuration, visit the following URL:

http://www.cisco.com/en/US/docs/voice_ip_comm/unity_exp/roadmap/cuedocs.html#wp1044964

Security Parameters — Configuring Access Control Lists (ACLs)

ACLs are used to define the security settings on SR500 on UC500 devices. The following guidelines apply to OOB configuration of ACLs:

- Users must not edit or remove numbered ACLs reserved for CCA.
- Users can use numbered ACLs in the OOB range to apply custom ACL configurations using OOB tools.
- Numbered ACLs created in the OOB range will not be overwritten or altered by CCA.

The following table lists ACL tag ranges reserved for use by CCA.

Description	CCA-Reserved ACL Tag Range
Standard ACL	1 - 49
Extended ACL	100 - 149

The following guidelines apply to tag ranges used for OOB ACLs:

- New OOB Standard ACLs should be created in the 50 - 99 range.
- New OOB Extended ACLs should be created in the 150 - 199 range.
- IOS also allows ACLs to be named. The following named ACLs are used by CCA


```
ip access-list extended dhcp-req-permit
ip access-list extended dhcp-resp-permit
```
- Named ACL using the `ip access-list` command will not be overwritten or altered by CCA.

For more information on ACL configuration using IOS CLI, visit the following URL:

http://www.cisco.com/en/US/docs/ios/security/configuration/guide/sec_acl_ov_guideline_ps6350_TSD_Products_Configuration_Guide_Chapter.html

Security — Configuring EZVPN

When configuring the VPN server, the group name must be EZVPN_GROUP_1.

Security — SIP Trunk ACLs

The SIP trunk generates a standard ACL within the current tag range. The voice source-group name used by the SIP trunk is CCA_SIP_SOURCE_GROUP. This name must be unique across the system and must not be modified.

Wireless Parameter Configuration

The information in this section applies to OOB configuration of wireless parameters.

Configuring Service Set Identifiers (SSIDs)

SSID are used to define the wireless parameters for SR500 and UC500. The following SSID are configured by default on SR500 and UC500 platforms. CCA can be used to delete or modify these SSIDs.

Platform	SSID Name	Description
UC500	uc520-data	UC500 Data
	uc520-voice	UC500 Voice
SR500	sr520	SR500 Data

The Wireless Setup Wizard will overwrite and replace existing OOB parameters with SSID values entered in the wizard. The Wireless Setup Wizard supports WPA2-PSK security only.

Configuring Bridge-Group Virtual Interfaces (BVIs)

BVIs are used to bind wireless and wired networks on SR500 and UC500 platforms with integrated wireless access points (AP). The following BVIs are configured by default on SR500 & UC500. BVI 1 on UC500 and BVI 75 on SR500 are used for system management and must NOT be deleted. CCA can be used to modify all other BVIs.

Platform	BVI number	Description
UC500W	1	UC500 Data
	100	UC500 Voice
SR500W	75	SR500 Data

For more information on IOS CLI wireless configuration, visit the following URL:

http://www.cisco.com/en/US/products/hw/routers/ps380/products_configuration_example09186a00808a8d80.shtml

Routing and Switching Configuration

The information in this section applies to OOB configuration of routing and switching parameters.

Configuring Virtual LANs (VLANs)

System VLAN information is maintained by CCA in the vlan.dat file, which resides on the flash of the UC500 or SR500 Series routers. This file must not be deleted. Any factory default or flash clean-up processes initiated from CCA will automatically restore the vlan.dat file.

The voice VLAN settings should only be modified by CCA using the Configure > Telephony > Voice > Network tab. The voice DHCP pool should not be deleted to insure successful registration of IP phones to the UC500.

The following VLAN IDs are configured by default on SR500 and UC500 platforms.

Platform	VLAN ID	VLAN name	Description
UC500	1	default	UC500 Data
	100	Cisco-Voice	UC500 Voice
SR500	75	VLAN0075	SR500 Data

VLAN 1 on the UC500 and VLAN 75 on SR500 are used for system management and must NOT be deleted.

CCA can be used to modify all other VLANs.

For more information on VLAN configuration using IOS CLI, visit the following URL:

http://www.cisco.com/en/US/docs/ios/lanswitch/configuration/guide/lsw_hwic_ethsw_ic_ps6350_TSD_Products_Configuration_Guide_Chapter.html

Configuring IP Addresses

The following IP addresses are configured by default on SR500 and UC500 platforms.

Platform	Interface	IP Address	Subnet Mask	Description
UC500	Loopback 0	10.1.10.2	255.255.255.252	UC500 loopback
	VLAN 100 or BVI100	10.1.1.1	255.255.255.0	UC500 voice
	VLAN 1 or BVI1	192.168.10.1	255.255.255.0	UC500 data
	Integrated-Service-Engine 0/0	10.1.10.1	255.255.255.252	Cisco Unity Express
SR500	VLAN 75 or BVI75	192.168.75.1	255.255.255.0	SR500 data

CCA can be used to modify these IP addresses, with the following caveats:

- IP addresses for VLAN 1/BVI1 on UC500 and VLAN 75/BVI75 on SR500 can be changed only through the device setup wizard for the respective platform.
- On UC500 Integrated-Service Engine 0/0 and Loopback interfaces, IP addresses should NOT be changed; these IP addresses are required for maintaining CCA interoperability with CUE.

For more information on IP address configuration using IOS CLI, visit the following URL:

http://www.cisco.com/en/US/docs/ios/ipaddr/configuration/guide/iad_config_ipadd_ps6350_TSD_Products_Configuration_Guide_Chapter.html

Configuring Static IP Routes

The following static IP routes are configured by default on SR500 and UC500 platforms.

Platform	Destination Network	Network Mask	Outgoing Interface	Description
UC500	10.1.10.1	255.255.255.255	Integrated-Service-Engine 0/0	Route to CUE
SR500	10.1.10.0	255.255.255.252	192.168.75.2	Route from SR500 to UC500 loopback & CUE
	192.168.10.0	255.255.255.0	192.168.75.2	Route from SR500 to UC500 Data network
	10.1.1.0	255.255.255.0	192.168.75.2	Route from SR500 to UC500 voice network
	0.0.0.0	0.0.0.0	FastEthernet4 (for FastEthernet WAN platforms) Dialer 0 (for ADSL WAN platforms)	SR500 default route to WAN

CCA can be used to modify these static routes, with the following caveat:

- 10.1.10.1 must NOT be deleted or modified; this IP address is required for maintaining CCA interoperability with CUE.

For further information on static route configuration using IOS CLI, visit the following URL:

http://www.cisco.com/en/US/docs/ios/iproute/configuration/guide/irp_ip_prot_indep_ps6350_TSD_Products_Configuration_Guide_Chapter.html#wp1056183

For More Information

Product and Support Resources	Location
Cisco Configuration Assistant product information	www.cisco.com/go/configassist
Cisco Configuration Assistant documentation and support links	www.cisco.com/en/US/products/ps7287/tsd_products_support_series_home.html
SBCS marketing information	www.cisco.com/go/sbcs
Cisco Partner tools	www.cisco.com/go/partners
Cisco Small Business Support Community	www.cisco.com/go/smallbizsupport
Cisco.com Technical Support page	http://www.cisco.com/en/US/support/index.html

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