END USERS

Three levels of end user:

- System Administrators—god-like control over the system (typically level 15 in IOS, where you'll almost certainly have to create it)
- Customer Administrators—can perform Moves, Adds and Changes (MACs) for end-user phones, but can't administer the overall system. We'll create this using the native CME GUI
- Phone Users—can customize their own experience—speed dials, extension mobility, etc. These are created as part of the phone's configuration.

THE NATIVE CME GUI

Keep the version of the native CME GUI in sync with the CME (IOS) version. When downloaded separately, it comes in a TAR (Tape ARchive) file that will need to be extracted to flash. Next, lay some groundwork in the CLI.

```
R1(config)# ip http server
R1(config)# ip http secure-server
                Optional
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]
R1(config)# ip http path flash:
                Where the router's web server should find the files for the native GUI. Some versions use this
                command to find them in a subdirectory, e.g. flash:/gui
R1(config)# ip http authentication local
                Use the username / password entries on the router as accounts in the GUI. May not be necessary
                if use a "web admin" under telephony-service (next two lines)
R1(config)# telephony-service
R1(config-telephony)# web admin system name fred password 0 flintstone
                Fred will be the CME system administrator in the GUI. Notice this is under telephony-service,
                so this user has no other access and isn't considered a "local account."
                OK to use keyword "secret" instead of "password"
                The 0 is optional and indicates the password is typed in plaintext insead of "pre-encrypted."
R1(config-telephony)# dn-webedit
                Allow the web GUI to administer directory numbers
R1(config-telephony)# time-webedit
                Allow the web GUI to administer phone time; don't use if you're syncing to NTP
```

To connect, use the URL:

http:// <ip> /ccme.html

                Without the "ccme.html," you'll get the normal router config instead of CCME.
                If it doesn't work on the first try, save the running config & reload
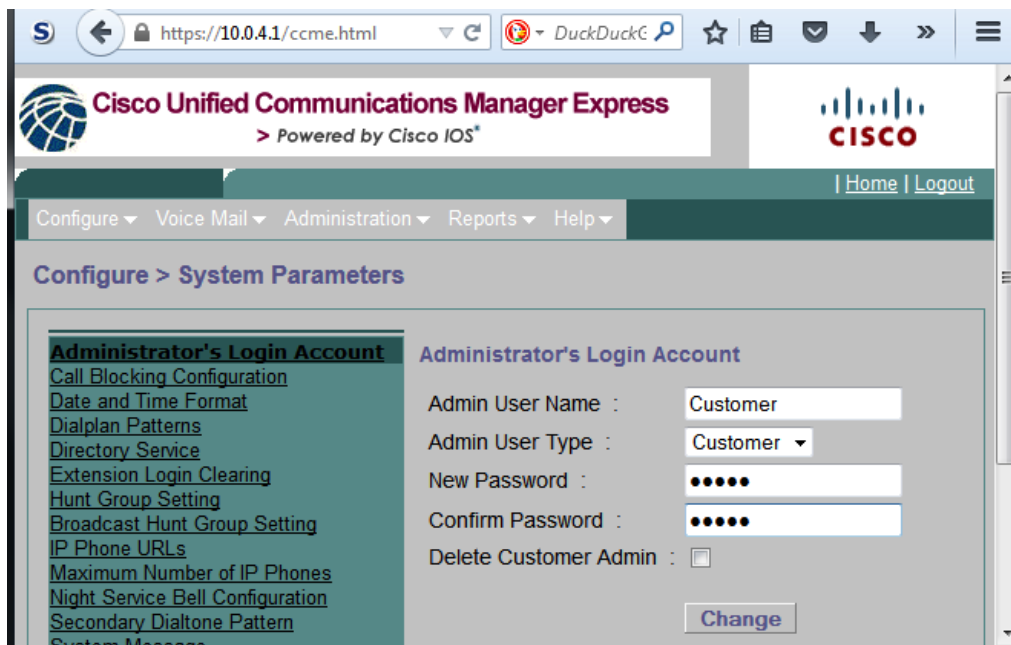
We already have a system admin, created in the CLI in chapter 4 as follows:

```
username neo privilege 15 secret cisco
```

To create a customer admin. In CME's inbuilt web GUI,

Configure → System Parameters → Administrator's Login Account

The third menu level for "System Parameters" is in the blue-green sidebar. No other Second-level items in the native GUI have a third level.

Change the Admin User Type to "Customer" (Admin User Name automatically changes to "Customer"), type a password (twice) and click the [change] button.

Ephone (Ethernet Phone)—the physical phone sitting on a desk. Identified by device type (model #) and MAC address. The buttons can be configured for things like speed dials and intercoms. Softkey templates can be applied to the buttons along the bottom of the display screen. The purposes and labels of those buttons change easily and often, based on the mode of the phones user interface and the resulting contents of the phone's display.

A user can be associated with an ephone, authorizing them to customize its configuration.

! In order for the inbuilt GUI to add ephones, auto-registration must be enabled. Without it, the error message "No new phone to add!" is displayed.

Ephone-DN (Directory Number)—Like a phone line or extension number. The relationship between an ephone and a DN can be constant or can come and go as users "log in" to a phone (extension mobility).

Users can't modify DNs. They are associated to DNs for other reasons:

- The company directory
- Authorization / Accountability for calls made
- Presence (is the line busy) can be shown in the directory

The built-in GUI can add DNs and associate them to users.

Configurations differ based on whether you're using SCCP or SIP:

ITEM	SCCP	SIP
IP Phone	ephone	voice register pool
Directory Number (extension)	ephone-dn	voice register dn
Telephony Configuration Mode / Prompt	telephony-service	voice register global

CISCO CONFIGURATION PROFESSIONAL

CCP (Cisco Configuration Professional) is a general purpose configuration GUI for Cisco devices, putting a GUI on most of the CLI configurations covered in CCNA ICND and some that are beyond even that (VPNs, intrusion prevention, QoS, Unified Communications, etc.).

Menu items are cited below in Helvetica; [buttons] are in brackets, (tab names) for multi-tab windows are in parentheses. The [configure] button tends to start most commands and is found in the upper left of the CCP window:
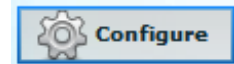
In CCP, an ephone-dn is called an "extension" and an ephone is called a phone.

Saving—CCP writes changes to running-config on the router; requiring the user to save to startup.

Initial Configuration—To use CCP, configure things like a router IP address, level 15 user account, HTTPS and SSH. (Maybe need HTTP and Telnet also), details in Chapter 4 (notes page 4-1). Then use CCP to start telephony services on the router. Now, (or perhaps after hitting the refresh button at the top of the utility), you can configure the basics for CME.

[Configure] Unified Communications → Telephony Settings *(Screenshot follows)*
- Phone types supported: SIP, SCCP, or both
- Max-ephones, Max-dn, ip source address (where phones send registration requests)
- Outside line access digit (e.g. 9), called "Secondary dial-tone digit"

After that, CME will be running and options will become available in CCP to configure it.
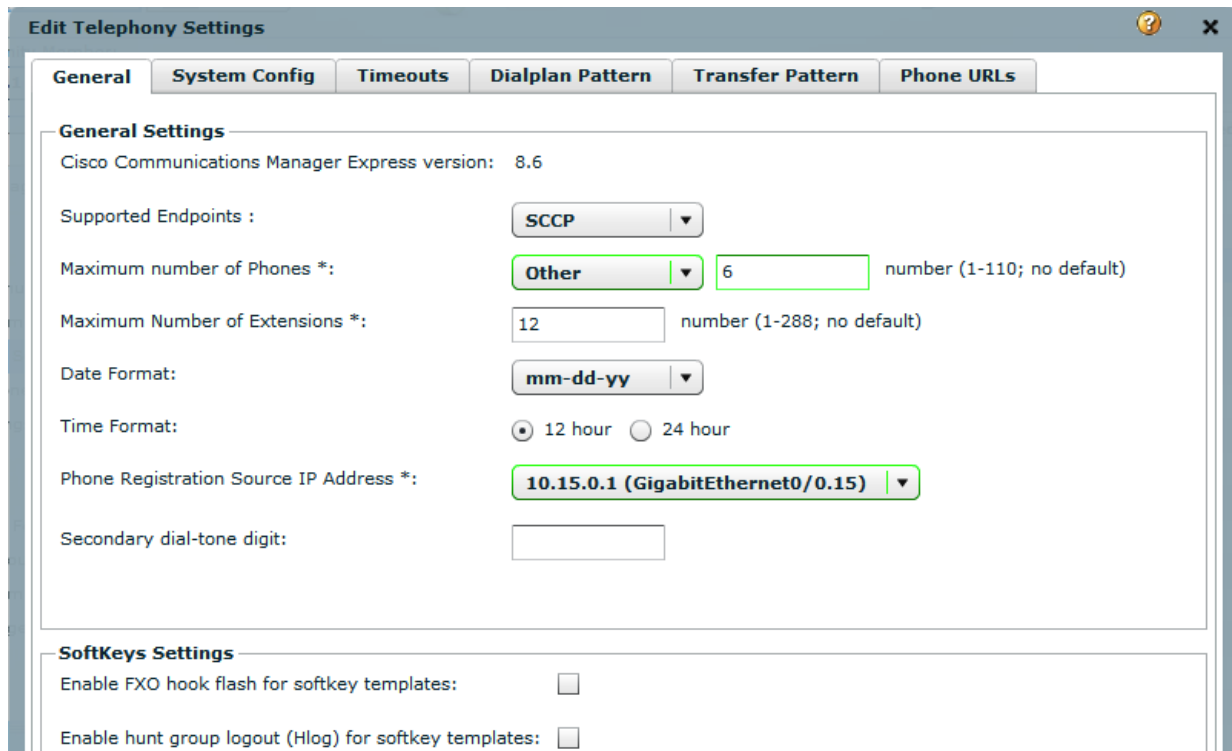
Firmware—You tell CCP which phone models you'll use and where to find the firmware files. CCP creates the CME configs to serve the firmware via TFTP to phones as they register. The second screen of the firmware wizard tells CCP where to get the firmware files, with 3 options:

- Firmware already in router flash—select & configure
- Upload firmware from PC to router flash & configure
- Upload without configuring

[Configure] Unified Communications → Users, Phones & Extensions → Templates and Firmware → Phone Firmware → [Launch Wizard]

The wizard button is in the right window pane
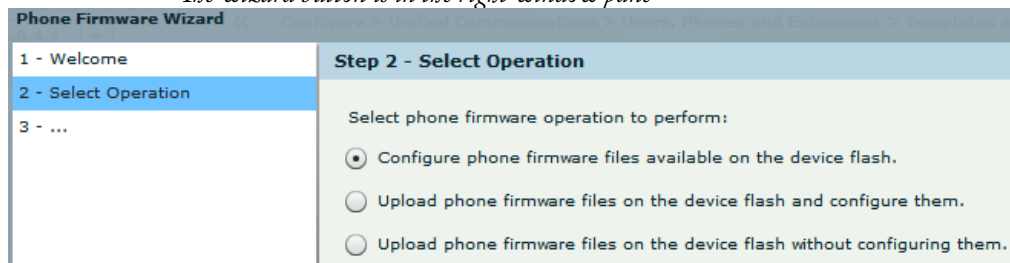
Extensions—Create the extension first, then assign it to a phone's line button when you configure the phone. Both the ephone (phones) and ephone-dn (extensions) windows have a bulk import option in the right pane for .csv files.

[Configure] Unified Communications → Users, Phones & Extensions → Extensions

An "extension" in CCP is an "ephone-dn" in the IOS. The "Create" button is at the screen bottom. Options:

- *Primary Number*
- *Secondary Number*
- *Name to be Displayed on Phone Line*
- *Description*
- *E.164 Registration—whether to register primary number, both, or none as PSTN-capable (long) numbers*
- *Line Mode (Dual-line, Single-line, Octo-line)—Number of active calls allowed on a phone button*

Create Extension	② ✕

Select feature in the list displayed below to configure it.

General*
Single Number Reach
Call Restrictions
Night-service Bell
Hunt Settings
Hold Alert
Extension Preference
Watch Mode Settings

General

Primary number *: `5000`

Secondary number: ` `

Name to be displayed on phone line: `Greg Brady (5000)`

Description: `Supervisor`

Line Mode/Simultaneous Number of
Active Calls allowed on a Phone Button: **Dual-line (two calls)** ▼

E.164 registration: **Register both numbers** ▼

☐ Block caller ID for calls from this extension

Call Forwarding

Configure incoming call diversion to another number for all the calls, when dialed number is busy or when there is no answer.

Forward All Calls to: ` `

When Busy, Divert Calls to: ` `

Divert Unattended Calls to: ` `

No Answer Timeout: ` `   seconds (3-60,000)

* Indicates a mandatory field

OK   Cancel

Phones & Users—The extension, above, had a name (Greg Brady) but that's just a label for phone buttons and the company directory, not a real user "entity." Real user accounts are created as part of the phone creation process, allowing that user to log in and configure their own phone.

[Configure] Unified Communications → Users, Phones & Extensions → Phones & Users (Phone tab)

The "Add" button asks for Model # and MAC address. Extensions can be associated with the phone with options to configure line type and ring type for each.

Create Phone/User

| Phone | User | Mailbox | Phone Settings |

Phone Model *: 7940

MAC address *: 0017.9538.48a3

Router's port phone is connected to: Select

Auto-line selection: Enable

Extensions

To associate extension(s) to a phone line, select phone line on the right and add from the available extension(s) on the left.

Available Extensions

5001
5002

Line	Associated Extension	Line Type	Ring Type
1	5000	Regular	Normal
2		Regular	Normal

* Indicates a mandatory field

OK   Cancel

Users—CCP ties ephones and ephone-dns together with "users." This also sets up the directory entries on the phone.

[Configure] Unified Communications → Users, Phones & Extensions → Phones & Users (User Tab)

Fields include: (* = required)
- *User ID **
- *First Name*
- *Last Name*
- *Display Name (for caller ID)*
- *Password*
- *PIN (for extension mobility)*

Create Phone/User

| Phone | **User** | Mailbox | **Phone Settings** |

User ID : `gbrady`

First Name: `Greg`

Last Name: `Brady`

Display Name: `Greg Brady`

Password Generation: `Use Custom Password Below ▼`

New Password: `*****`

Confirm Password: `*****`

PIN Generation: `Use Custom PIN Below ▼`

New PIN: `****` (4-8 digits)

Confirm PIN: `****` (4-8 digits)

* Indicates a mandatory field

OK **Cancel**

Now we can see the what we just added: a phone, a user, and their association (implicit because each was a different tab of the same create/edit window).

Configure > Unified Communications > Users, Phones and Extensions > Phones and Users

Filter

| 1 rows retrieved |

Phone Tag	Phone Type	Phone Model	MAC Address	Extensions	User ID	First Name	Last Name	Mailbox
1	SCCP	7940	0017.9538.4	5000	gbrady	Greg	Brady	No