



# Creating Phone Configurations Using Extension Assigner

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This chapter describes the Extension Assigner feature in Cisco Unified Communications Manager Express (Cisco Unified CME).

## Finding Feature Information in This Module

Your Cisco Unified CME version may not support the feature documented in this module. For a list of the versions in which this feature is supported, see the [“Feature Information for Extension Assigner”](#) section on page 357.

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## Prerequisites for Extension Assigner

- Cisco Unified CME 4.0(3) or a later version.
- For Extension Assigner Synchronization, Cisco Unified CME 4.2(1) or a later version.
- The **auto-register-phone** command must be enabled (default).
- DHCP must be configured. For configuration information, see the [“Defining Network Parameters”](#) section on page 83.
- You have a valid Cisco.com account.
- You have access to a TFTP server for downloading files.

## Restrictions for Extension Assigner

- The number of phones that you install cannot exceed the maximum number of phones supported by the router chassis. To find the maximum number of phones for a particular router and Cisco Unified CME version, see the appropriate [Cisco Unified CME Supported Firmware, Platforms, Memory, and Voice Products](#) for your Cisco IOS release.
- This feature is not supported for SIP endpoints in Cisco Unified CME.
- For Extension Assigner Synchronization, automatic synchronization only applies to configuration changes made by Cisco Unified CME Extension Assigner.

## Information About Extension Assigner

To use extension assigner, you should understand the following concepts:

- [Extension Assigner Overview, page 328](#)
- [Files Included in this Release, page 332](#)
- [Extension Assigner Synchronization, page 333](#)

## Extension Assigner Overview

This feature enables installation technicians to assign extension numbers to Cisco Unified CME phones without administrative access to the server, typically during the installation of new phones or the replacement of broken phones. However, before an installation technician can use this feature, the system administrator must first configure Cisco Unified CME to allow specific extensions to be assigned. The system administrator must also provide the installation technician with the information necessary for assigning extension numbers to phones. The installation technician can then assign extension numbers to phones with access to only the phones themselves and with no further intervention from the administrator.

To configure this feature, tasks must be performed on the Cisco router by an administrator and onsite by installation technicians. .

## Procedures for System Administrators

Before an installation technician can assign new extension numbers to phones, you must complete the following tasks:

1. Determine which extension numbers will be assigned to the new phones and plan your configuration.
2. Download the appropriate Tcl script and associated audio prompt files and place them in the correct directory.
3. Configure the Cisco Unified CME router to:
  - Configure and load the appropriate Tcl script.
  - Specify the extension that the installation technician calls to assign extension numbers.
  - Optionally specify whether the extension used to assign extension numbers is dialed automatically.

- Specify the password that the installation technician enters to assign extension numbers.
  - Configure the extension assigner feature.
  - Configure ephone-dns with temporary extension numbers.
  - Configure ephone-dns with the extension numbers that the installation technician can assign to phones.
  - Configure ephones with temporary MAC addresses for each phone that will be assigned an extension number by the installation technician.
  - Optionally configure the router to automatically save your configuration.
4. Provide the installation technician with the information needed to assign extension numbers to the new phones.

Before you can configure this feature, you must understand how the extension assigner application works and what information the installation technician needs to assign extension numbers to phones.

Other information you must provide to the installation technician involves the tasks that the installation technician must perform. These tasks include:

- Dialing a configurable extension number to access the extension assigner application
- Entering a configurable password
- Entering a tag that identifies the extension number that will be assigned to the phone

Therefore, you must make the following decisions:

- Which extension number must be dialed to access the extension assigner application.
- Whether the number is dialed automatically when a phone goes off hook.
- What password the installation technician must enter to access the extension assigner application.
- What type of tag numbers to use to identify the extension number to assign to the phone.
- What specific tag numbers to use to identify the extension number to assign to the phone.

The first three decisions are straightforward, but the last two tag number decisions require some knowledge of how the extension assigner feature works.

This feature is implemented using a Tcl script and audio files. To run this script, the installation technician plugs in the phone, waits for a random extension number to be automatically assigned, and dials a specified extension number.

After the phones have registered and received their temporary extension numbers, the installation technician can access extension assigner and enter a tag number. This tag number is used to identify the extension number and must match either an ephone tag or a similar new tag called the provision-tag.

You must decide on which tag you want to use before you configure your ephone and ephone-dn entries.

The advantage of using the provision-tag is that you can make it easier for the installation technician to assign extension numbers because you can configure the tag to match the primary extension number or some other unique identifier for the phone, such as a jack number.

The disadvantage is that you configure an additional keyword for each ephone entry, as shown in the following example:

```
ephone 1
  provision-tag 9001
  mac-address 02EA.EAEA.0001
  button 1:1
```

If you decide to use the ephone tag, it will require less configuration. However, the installation technician will enter an arbitrary tag number instead of the actual extension number when configuring a phone. This restriction is because the number of ephone tags that you can configure is limited by your license. For example, if you use the ephone tag and you have a 100-user license, the installation technician cannot enter 9001 for the tag because you can configure only ephone 1 to ephone 100.

Note that each ephone entry that you configure must also include a temporary MAC address. As shown in the above example, this address should begin with 02EA.EAEA and can end with any unique number. We strongly recommend that you can configure this unique number to match the ephone tag.

You do not have to configure any ephone entries for the extension number that are randomly assigned. The autoassign feature automatically creates an ephone entry for each new phone when it registers. The autoassign feature then automatically assigns an ephone-dn entry if there is an available ephone-dn that has one of the tag numbers specified by the **auto assign** command. The resulting ephone configurations have the actual MAC address of the phone and a button with the first available ephone-dn designated for the autoassign feature.

As shown in the following example, you configure at least one ephone-dn for a temporary extension and specify which ephone-dns the autoassign feature will assign to the temporary ephone entries:

```
telephony-service
  auto assign 101 to 105

ephone-dn 101
  number 0001
```

When the installation technician assigns an extension number to a phone, the temporary MAC address is replaced by the actual MAC address and the ephone entry created by the autoregister feature is deleted. The number of ephone-dns that you configure for the autoassign feature determines how many phones you can plug in at one time and get an automatically assigned extension. If you define four ephone-dns for autoassign and you plug in five phones, one phone will not get a temporary extension number until you assign an extension to one of the other four phones and reset the fifth phone. You are permitted to set the max-ephone value higher than the number of users and phones supported by your Cisco Unified CME phone licenses for the purpose of enrolling licensed phones using Extension Assigner.

In addition to configuring one ephone-dn for each temporary extension number that is assigned automatically, you also must configure an ephone-dn entry for each extension number that is assigned by the installation technician.

To complete the configuration, as shown in the following example, you must:

- Specify whether to use the ephone or the provision-tag number to identify the extension number to assign to the phone. Set this when the feature is enabled with the new **extension-assigner tag-type** command provided with this feature.
- Configure an ephone-dn for each temporary extension number that is assigned automatically.
- Configure an ephone-dn for each extension number that you want the installation technician to assign to a phone.

- Configure an ephone with a temporary MAC address for each phone that is assigned an extension number by the installation technician. Optionally, this ephone definition can include the new provision-tag. For more information, see the [“Configuring Ephones with Temporary MAC Addresses”](#) section on page 343.

```
telephony-service
extension-assigner tag-type provision-tag
auto assign 101 to 105

ephone-dn 1 dual-line
number 6001

ephone-dn 101
number 0001
label Temp-Line-not assigned yet

ephone 1
provision-tag 6001
mac-address 02EA.EAEA.0001
button 1:1
```

Because you must configure two ephone-dns for each extension number that you want to assign, you may exceed your max-dn setting. You are permitted to set the max-dn value higher than the number allowed by your license for the purpose of enrolling licensed phones using extension assigner.

Assuming that your max-dn setting is set high enough, your max-ephone setting determines how many phones you can plug in at one time. For example, if your max-ephone setting is ten more than the number of phones to which you want to assign extension numbers, then you can plug in ten phones at a time. If you plug in eleven phones, one phone will not register or get a temporary extension number until you assign an extension to one of the first ten phones and reset the eleventh phone.

After you have configured your ephone and ephone-dn entries, you can complete your router configuration by optionally configuring the router to automatically save your configuration. If the router configuration is not saved, any extension assignments made by the installation technician will be lost when the router is restarted. The alternative to this optional procedure is to have the installation technician connect to the router and enter the **write memory** command to save the router configuration.

The final task of the system administrator is to document the information that the installation technician needs to assign extension numbers to the new phones. You can also use this documentation as a guide when you configure Cisco Unified CME to implement this feature. This information includes:

- How many phones the installation technician can plug in at one time
- Which extension number to dial to access the extension assigner application
- Whether the number is dialed automatically when a phone goes off hook
- What password to enter to access the application
- Which tag numbers to enter to assign an extension to each phone


**Note**

Because this feature is implemented using a Tcl script and audio files, you must place the script and associated audio prompt files in the correct directory. Do not edit this script; just configure Cisco Unified CME to load the appropriate script.

## Procedures for Installation Technicians

This feature is implemented using a Tcl script and audio prompt files that enable the installation technician to assign an extension number to a new Cisco Unified CME phone by performing the following procedure. The system administrator provides the installation technician with all of the information required to perform this procedure.

- 
- |               |  |
|---------------|--|
| <b>Step 1</b> | Plug in a specified number of new phones.  |
| <b>Step 2</b> | Wait for the phones to be assigned temporary, random extension numbers.  |
| <b>Step 3</b> | Dial a specified number to access the extension assigner application.  |
| <b>Step 4</b> | Enter a specified password.  |
| <b>Step 5</b> | Enter a tag that identifies an extension number and enables the installation technician to perform one of the following tasks: |
- Assign a new extension number to a phone.
  - Unassign the current extension number.
  - Reassign an extension number.
- 

## Files Included in this Release

The app-cme-ea-2.0.0.0.tar or later archive file provided for the extension assigner feature includes a readme file, a Tcl script, and several audio prompt files. If you want to replace the audio files with files that use a language other than English, do not change the name of the files. The Tcl script is written to use only the following list of the filenames:

- app-cme-ea-2.0.0.0.tcl (script)
- en\_cme\_tag\_assign\_phone.au (audio file)
- en\_cme\_tag\_assigned\_to\_phone.au (audio file)
- en\_cme\_tag\_assigned\_to\_phone\_idle.au (audio file)
- en\_cme\_tag\_assigned\_to\_phone\_inuse.au (audio file)
- en\_cme\_tag\_assigned\_to\_phone\_unreg.au (audio file)
- en\_cme\_tag\_available.au (audio file)
- en\_cme\_tag\_extension.au (audio file)
- en\_cme\_tag\_invalid.au (audio file)
- en\_cme\_tag\_unassign\_phone.au (audio file)
- en\_cme\_tag\_action\_cancelled.au (audio file)
- en\_cme\_tag\_assign\_failed.au (audio file)
- en\_cme\_tag\_assign\_success.au (audio file)
- en\_cme\_tag\_contact\_admin.au (audio file)
- en\_cme\_tag\_disconnect.au (audio file)
- en\_cme\_tag\_ephone\_tagid.au (audio file)

- en\_cme\_tag\_invalid\_password.au (audio file)
- en\_cme\_tag\_invalidoption.au (audio file)
- en\_cme\_tag\_noentry.au (audio file)
- en\_cme\_tag\_password.au (audio file)
- en\_cme\_tag\_unassign\_failed.au (audio file)
- en\_cme\_tag\_unassign\_success.au (audio file)
- en\_eight.au (audio file)
- en\_five.au (audio file)
- en\_four.au (audio file)
- en\_nine.au (audio file)
- en\_one.au (audio file)
- en\_seven.au (audio file)
- en\_six.au (audio file)
- en\_three.au (audio file)
- en\_two.au (audio file)
- en\_zero.au (audio file)
- readme.txt

## Extension Assigner Synchronization

Extension Assigner Synchronization enables the secondary backup router to automatically receive any changes made by Extension Assigner to ephone mac-addresses in the primary router. The synchronization is performed using the Cisco Unified CME XML interface. The Cisco Unified CME XML client encapsulates the configuration changes into an **ISexecCLI** request and sends it to the secondary backup router using HTTP. The server on the secondary backup side processes the incoming XML request and calls the Cisco IOS CLI parser to perform the updates.

For configuration information, see the [“Configuring Extension Assigner Synchronization” section on page 347](#).

## SCCP: How to Configure Extension Assigner

This section contains the following tasks:

- [Configuring Extension Assigner, page 334](#) (required)
- [Configuring Extension Assigner Synchronization, page 347](#) (optional)
- [Assigning Extension Numbers Onsite by Using Extension Assigner, page 349](#) (required)

## Configuring Extension Assigner

The following tasks are performed by an administrator or other personnel who is responsible for configuring Extension Assigner:

- [Determining Which Extension Numbers to Assign to the New Phones and Plan Your Configuration, page 334](#)
- [Downloading the Tcl Script, page 334](#)
- [Configuring the Tcl Script, page 335](#)
- [Specifying the Extension for Accessing Extension Assigner Application, page 337](#)
- [Configuring Provision-Tags for the Extension Assigner Feature, page 339](#)
- [Configuring Temporary Extension Numbers for Phones That Use Extension Assigner, page 340](#)
- [Configuring Extension Numbers That Installation Technicians Can Assign to Phones, page 342](#)
- [Configuring Ephones with Temporary MAC Addresses, page 343](#)
- [Configuring the Router to Automatically Save Your Configuration, page 345](#)
- [Provide the Installation Technician with the Required Information, page 347](#)

### Determining Which Extension Numbers to Assign to the New Phones and Plan Your Configuration

After you determine which extension number to assign to each phone, you must make the following decisions:

- Which extension number must be dialed to access the extension assigner application.
- Whether the number is dialed automatically when a phone goes off hook.
- What password the installation technician must enter to access the extension assigner application.
- Whether to use ephone-tag or the provision-tag number to identify the extension number to assign to the phone.
- How many temporary extension numbers to configure. This will determine how many temporary ephone-dns and temporary MAC addresses to configure.
- What specific tag numbers to use to identify the extension number to assign to the phone.

### Downloading the Tcl Script

To download the Tcl script and audio prompt files for the extension assigner feature, perform the following steps.

For more information about how to use Tcl scripts, see the [Cisco IOS Tcl IVR and Voice XML Application Guide](#) for your Cisco IOS release.

**Note**

Do not edit the Tcl script



## SUMMARY STEPS

1. Go to the Cisco Unified CME software download website at <http://software.cisco.com/download/type.html?mdfid=277641082&catid=null>.
2. Download the Cisco Unified CME extension assigner tar archive to a TFTP server or to the Cisco Unified CME system's flash memory.
3. **enable**
4. **archive tar /xtract** *source-url destination-url*

## DETAILED STEPS

	Command or Action	Purpose
Step 1	Go to the Cisco Unified CME software download website at <a href="http://software.cisco.com/download/type.html?mdfid=277641082&amp;catid=null">http://software.cisco.com/download/type.html?mdfid=277641082&amp;catid=null</a> .	Gives you access to Cisco Unified CME software downloads.
Step 2	Download the Cisco Unified CME extension assigner tar archive to a TFTP server that is accessible to the Cisco Unified CME router.	Downloads the Cisco Unified CME extension assigner tar archive to a TFTP server that is accessible to the Cisco Unified CME router. <ul style="list-style-type: none"> <li>• This tar archive contains the extension assigner Tcl script and the default audio files that you need for the extension assigner service.</li> </ul>
Step 3	<b>enable</b>  <b>Example:</b> Router# enable	Enters global configuration mode.
Step 4	<b>archive tar /xtract</b> <i>source-url destination-url</i>  <b>Example:</b> Router# archive tar /xtract tftp://192.168.1.1/app-cme-ea-2.0.0.0.tar flash:	Uncompresses the files in the archive file and copies them to a location that is accessible by the Cisco Unified CME router. <ul style="list-style-type: none"> <li>• <i>source-url</i>—URL of the source of the extension assigner TAR file. Valid URLs can refer to TFTP or HTTP servers or to flash memory.</li> <li>• <i>location</i>—URL of the destination of the extension assigner TAR file, including its Tcl script and audio files. Valid URLs can refer to TFTP or HTTP servers or to flash memory.</li> </ul>

## Configuring the Tcl Script

To configure and load the Tcl script for the extension assigner feature and create the password that installation technicians enter to access the extension assigner application, perform the following steps.

For more information about how to use Tcl scripts, see the [Cisco IOS Tcl IVR and Voice XML Application Guide](#) for your Cisco IOS release.



### Note

To change the password, you must remove the existing extension assigner service and create a new service that defines a new password.

## SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **application**
4. **service** *service-name location*
5. **param ea-password** *password*
6. **paramspace english index** *number*
7. **paramspace english language en**
8. **paramspace english location** *location*
9. **paramspace english prefix en**
10. **end**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>Enter your password if prompted.</li> </ul>
Step 2	<b>configure terminal</b>  <b>Example:</b> Router# configure terminal	Enters global configuration mode.
Step 3	<b>application</b>  <b>Example:</b> Router(config)# application	Enters application configuration mode to configure packages and services.
Step 4	<b>service</b> <i>service-name location</i>  <b>Example:</b> Router(config-app)# service EA tftp://10.1.1.100/app-cme-ea-2.0.0.0.tcl	Enters service parameter configuration mode to configure parameters for the call-queue service. <ul style="list-style-type: none"> <li><i>service-name</i>—Name of the extension assigner service. This arbitrary name is used to identify the service during configuration tasks.</li> <li><i>location</i>—URL of the Tcl script for the extension assigner service. Valid URLs can refer to TFTP or HTTP servers or to flash memory.</li> </ul>
Step 5	<b>param ea-password</b> <i>password</i>  <b>Example:</b> Router(config-app-param)# param ea-password 1234	Sets the password that installation technicians enter to access the extension assigner application. <ul style="list-style-type: none"> <li><i>password</i>—Numerical password that installation technicians enter to access the extension assigner application. Length: 2 to 10 digits.</li> </ul>

	Command or Action	Purpose
Step 6	<b>paramspace english index <i>number</i></b>  <b>Example:</b> Router(config-app-param)# paramspace english index 0	Defines the category of audio files that are used for dynamic prompts by an IVR application. <ul style="list-style-type: none"> <li>For Extension Assigner, language must be English.</li> <li><i>number</i>—Category group of the audio files (from 0 to 4). For example, audio files representing the days and months can be category 1, audio files representing units of currency can be category 2, and audio files representing units of time—seconds, minutes, and hours—can be category 3. Range is from 0 to 4; 0 means all categories.</li> </ul>
Step 7	<b>paramspace english language en</b>  <b>Example:</b> Router(config-app-param)# paramspace english language en	Defines the language of audio files that are used for dynamic prompts by an IVR application. <ul style="list-style-type: none"> <li>For the Extension Assigner, language must be English and prefix is <b>en</b>.</li> </ul>
Step 8	<b>paramspace english location <i>location</i></b>  <b>Example:</b> Router(config-app-param)# paramspace english location tftp://10.1.1.100/app-cme-ea-2.0.0.0.tcl	Defines the location of audio files that are used for dynamic prompts by an IVR application. <ul style="list-style-type: none"> <li>For the Extension Assigner, language must be English.</li> <li><i>location</i>—URL of the Tcl script for the extension assigner service. Valid URLs can refer to TFTP or HTTP servers or to flash memory.</li> </ul>
Step 9	<b>paramspace english prefix en</b>  <b>Example:</b> Router(config-app-param)# paramspace english prefix en	Defines the prefix of audio files that are used for dynamic prompts by an IVR application. <ul style="list-style-type: none"> <li>For the Extension Assigner, language must be English and prefix is <b>en</b>.</li> </ul>
Step 10	<b>end</b>  <b>Example:</b> Router(config-app-param)# end	Returns to privileged EXEC mode.

## Specifying the Extension for Accessing Extension Assigner Application

To specify the extension number that installation technicians must dial to access the extension assigner application during onsite installation, perform the following steps.

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **dial-peer voice *tag* voip**
4. **service *service-name* outbound**
5. **destination-pattern *string***
6. **session target ipv4:*destination-address***

7. **dtmf-relay h245-alphanumeric**
8. **codec g711ulaw**
9. **no vad**
10. **end**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>Enter your password if prompted.</li> </ul>
Step 2	<b>configure terminal</b>  <b>Example:</b> Router# configure terminal	Enters global configuration mode.
Step 3	<b>dial-peer voice tag voip</b>  <b>Example:</b> Router(config)# dial-peer voice 5999 voip	Enters dial-peer configuration mode. <ul style="list-style-type: none"> <li><i>tag</i>—Number used during configuration tasks to identify this dial peer.</li> </ul>
Step 4	<b>service service-name outbound</b>  <b>Example:</b> Router(config-dial-peer)# service EA outbound	Loads and configures the extension assigner application on a dial peer. <ul style="list-style-type: none"> <li><i>service-name</i>—Name must match the name that you used to load the extension assigner Tcl script in the <a href="#">“Configuring the Tcl Script”</a> section on page 335.</li> <li><b>outbound</b>—Required for Extension Assigner.</li> </ul>
Step 5	<b>destination-pattern string</b>  <b>Example:</b> Router(config-dial-peer)# destination pattern 5999	Specifies either the prefix or the full E.164 telephone number (depending on the dial plan) for a dial peer. <ul style="list-style-type: none"> <li><i>string</i>—Number that the installation technician calls when assigning an extension number to a phone.</li> </ul>
Step 6	<b>session target ipv4:destination-address</b>  <b>Example:</b> Router(config-dial-peer)# session target ipv4:172.16.200.200	Designates a network-specific address to receive calls from a VoIP dial peer. <ul style="list-style-type: none"> <li><i>destination</i>—IP address for the Cisco Unified CME interface on this router.</li> </ul>
Step 7	<b>dtmf-relay h245-alphanumeric</b>  <b>Example:</b> Router(config-dial-peer)# dtmf-relay h245-alphanumeric	Specifies the H.245 alphanumeric method for relaying dual tone multifrequency (DTMF) tones between telephony interfaces and an H.323 network.
Step 8	<b>codec codec</b>  <b>Example:</b> Router(config-dial-peer)# codec g711ulaw	Specifies the voice coder rate of speech for a dial peer. <ul style="list-style-type: none"> <li><i>codec</i>—Option that represents the correct voice decoder rate.</li> </ul>

	Command or Action	Purpose
Step 9	<b>no vad</b>  <b>Example:</b> Router(config-dial-peer)# no vad	Disables voice activity detection (VAD) for the calls using a particular dial peer. <ul style="list-style-type: none"> <li>Required fro Extension Assigner.</li> </ul>
Step 10	<b>end</b>  <b>Example:</b> Router(config-dial-peer)# end	Returns to privileged EXEC mode.

## Configuring Provision-Tags for the Extension Assigner Feature

To modify Extension Assigner to use provision-tags, perform the following steps. By default, the extension assigner is enabled and uses ephone tags.

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **telephony-service**
4. **extension-assigner tag-type {ephone-tag | provision-tag}**
5. **end**

### DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>Enter your password if prompted.</li> </ul>
Step 2	<b>configure terminal</b>  <b>Example:</b> Router# configure terminal	Enters global configuration mode.
Step 3	<b>telephony-service</b>  <b>Example:</b> Router(config)# telephony-service	Enters telephony-service configuration mode.

	Command or Action	Purpose
Step 4	<b>extension-assigner tag-type {ephone-tag   provision-tag}</b>  <b>Example:</b> Router(config-telephony) # extension-assigner tag-type provision-tag	Specifies tag type to use to identify extension numbers for Extension Assigner. <ul style="list-style-type: none"> <li>• <b>ephone-tag</b>—Specifies that extension assigner use the ephone tag to identify the extension number that is assigned to a phone. The installation technician enters this number to assign an extension number to a phone.</li> <li>• <b>provision-tag</b>—Specifies that extension assigner use the provision-tag to identify the extension number that is assigned to a phone. The installation technician enters this number to assign an extension number to a phone.</li> </ul>
Step 5	<b>end</b>  <b>Example:</b> Router(config-telephony) # end	Returns to privileged EXEC mode.

## Configuring Temporary Extension Numbers for Phones That Use Extension Assigner

To create ephone-dsn to use as a temporary extension numbers for phones to which an extension number will be assigned by Extension Assigner, perform the following steps for each temporary number to be created.



### Tip

The readme file that is included with the script contains some sample entries for this procedure that you can edit to fit your needs.

## SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ephone-dn dn-tag [dual-line]**
4. **number number [secondary number] [no-reg [both | primary]]**
5. **trunk digit-string [timeout seconds]**
6. **name name**
7. **exit**
8. **telephony-service**
9. **auto assign dn-tag to dn-tag**
10. **end**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>Enter your password if prompted.</li> </ul>
Step 2	<b>configure terminal</b>  <b>Example:</b> Router# configure terminal	Enters global configuration mode.
Step 3	<b>ephone-dn dn-tag [dual-line]</b>  <b>Example:</b> Router(config)# ephone-dn 90	Enters ephone-dn configuration mode, creates an ephone-dn, and optionally assigns it dual-line status. <p><b>Note</b> We recommend that you use single-line mode for your temporary extension numbers.</p>
Step 4	<b>number number [secondary number] [no-reg [both   primary]]</b>  <b>Example:</b> Router(config-ephone-dn)# number 9000	Configures a valid extension number for this ephone-dn instance.
Step 5	<b>trunk digit-string [timeout seconds]</b>  <b>Example:</b> Router(config-ephone-dn)# trunk 5999	(Optional) Configures extension number to be automatically dialed for accessing the extension assigner application. <ul style="list-style-type: none"> <li><i>digit-string</i>—Must match the number that you configured in the <a href="#">“Specifying the Extension for Accessing Extension Assigner Application”</a> section on page 337.</li> </ul>
Step 6	<b>name name</b>  <b>Example:</b> Router(config-ephone-dn)# name hardware	(Optional) Associates a name with this ephone-dn instance. This name is used for caller-ID displays and in the local directory listings. <ul style="list-style-type: none"> <li>Must follow the name order that is specified with the <b>directory</b> command.</li> </ul>
Step 7	<b>exit</b>  <b>Example:</b> Router(config-ephone-dn)# exit	Exits ephone-dn configuration mode
Step 8	<b>telephony-service</b>  <b>Example:</b> Router(config)# telephony-service	Enters telephony-service configuration mode.
Step 9	<b>auto assign dn-tag to dn-tag</b>  <b>Example:</b> Router(config-telephony)# auto assign 90 to 99	Automatically assigns ephone-dn tags to Cisco Unified IP phones as they register for service with a Cisco Unified CME router. <ul style="list-style-type: none"> <li>Must match the tags that you configured in earlier step.</li> </ul>

	Command or Action	Purpose
Step 10	<b>end</b>  <b>Example:</b> Router(config-telephony)# end	Returns to privileged EXEC mode.

## Configuring Extension Numbers That Installation Technicians Can Assign to Phones

To create ephone-dns for an extension numbers that the installation technicians can assign to phones, perform the following steps for each directory number to be created.



### Tip

The readme file provided with this feature contains sample entries that you can edit to fit your needs.

## SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ephone-dn** *dn-tag* [*dual-line*]
4. **number** *number* [*secondary number*] [**no-reg** [*both* | *primary*]]
5. **name** *name*
6. **end**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
Step 2	<b>configure terminal</b>  <b>Example:</b> Router# configure terminal	Enters global configuration mode.
Step 3	<b>ephone-dn</b> <i>dn-tag</i> [ <i>dual-line</i> ]  <b>Example:</b> Router(config)# ephone-dn 20	Enters ephone-dn configuration mode, creates an ephone-dn, and optionally assigns it dual-line status.  <b>Note</b> To change an ephone-dn from dual-line to single-line mode or the reverse, first delete the ephone-dn and then recreate it.
Step 4	<b>number</b> <i>number</i> [ <i>secondary number</i> ] [ <b>no-reg</b> [ <i>both</i>   <i>primary</i> ]]  <b>Example:</b> Router(config-ephone-dn)# number 20	Configures a valid extension number for this ephone-dn instance.



	Command or Action	Purpose
Step 5	<b>name</b> <i>name</i>  <b>Example:</b> Router(config-ephone-dn)# <b>name</b> hardware	(Optional) Associates a name with this ephone-dn instance. This name is used for caller-ID displays and in the local directory listings. <ul style="list-style-type: none"> <li>Must follow the name order that is specified with the <b>directory</b> command.</li> </ul>
Step 6	<b>end</b>  <b>Example:</b> Router(config-ephone-dn)# end	Returns to privileged EXEC mode.

## Configuring Ephones with Temporary MAC Addresses

To create an ephone configuration with temporary a MAC address for a Cisco Unified CME phone to which you want the installation technician to assign extension numbers, perform the following steps for each phone.

### Prerequisites

- The **max-ephone** command must be configured for a value equal to at least one greater than the number of phones to which you want to assign extension numbers to allow the autoregister feature to automatically create at least one ephone for your temporary extension numbers.



#### Note

You are permitted to set the max-ephone value higher than the number of users supported by your Cisco Unified CME licenses for the purpose of enrolling licensed phones using Extension Assigner.

### Restrictions

- Max-ephone setting determines how many phones you can plug in at one time. For example, if your max-ephone setting is ten more than the number of phones to which you want to assign extension numbers, the you can plug in ten phones at a time. If you plug in eleven phones, one phone will not register or get a temporary extension number until you assign an extension to one of the first ten phones and reset the eleventh phone.
- For Cisco VG224 analog voice gateways with extension assigner, a minimum of 24 temporary ephones is required.



#### Tip

The readme file provided with this feature contains some sample entries for this procedure that you can edit to fit your needs.

## SUMMARY STEPS

- enable**
- configure terminal**
- ephone** *phone-tag*
- provision-tag** *number*

5. **mac-address** 02EA.EAEA.*number*
6. **type** *phone-type* [**addon 1** *module-type* [**2** *module-type*]]
7. **button**
8. **end**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>Enter your password if prompted.</li> </ul>
Step 2	<b>configure terminal</b>  <b>Example:</b> Router# configure terminal	Enters global configuration mode.
Step 3	<b>ephone</b> <i>phone-tag</i>  <b>Example:</b> Router(config)# ephone 20	Enters ephone configuration mode. <ul style="list-style-type: none"> <li><i>phone-tag</i>—Maximum number is version and platform-specific. Type ? to display range.</li> <li>Number that the installation technician enters when assigning an extension to a phone if Extension Assigner uses ephone-tags (default).</li> </ul>
Step 4	<b>provision-tag</b> <i>number</i>  <b>Example:</b> Router(config-ephone)# provision-tag 20	(Optional) Creates a unique sequence number to be used by Extension Assigner to identify extension numbers to be assigned. <ul style="list-style-type: none"> <li>required only if you configured the <b>provision-tag</b> keyword with the <b>extension-assigner tag-type</b> command.</li> </ul>
Step 5	<b>mac-address</b> 02EA.EAEA. <i>number</i>  <b>Example:</b> Router(config-ephone)# mac-address 02EA.EAEA.0020	Specifies a temporary MAC address number for this ephone. <ul style="list-style-type: none"> <li>For Extension Assigner, MAC address must begin with 02EA.EAEA.</li> <li><i>number</i>—We strongly recommend that you make this number the same as the ephone number.</li> </ul>
Step 6	<b>type</b> <i>phone-type</i> [ <b>addon 1</b> <i>module-type</i> [ <b>2</b> <i>module-type</i> ]]  <b>Example:</b> Router(config-ephone)# type 7960 addon 1 7914	Specifies the type of phone.
Step 7	<b>button</b> <i>button-number</i> { <i>separator</i> } <i>dn-tag</i>  <b>Example:</b> Router(config-ephone)# button 1:1	Associates a button number and line characteristics with an extension (ephone-dn). <ul style="list-style-type: none"> <li>Maximum number of buttons is determined by phone type.</li> </ul> <p><b>Note</b> The Cisco Unified IP Phone 7910 has only one line button, but can be given two ephone-dn tags.</p>

	Command or Action	Purpose
Step 8	<b>end</b>  <b>Example:</b> Router(config-ephone)# end	Returns to privileged EXEC mode.

## Configuring the Router to Automatically Save Your Configuration

To automatically save your router configuration when the router is restarted, perform the following steps.

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **kron policy-list** *list-name*
4. **cli write**
5. **exit**
6. **kron occurrence** *occurrence-name* [**user** *username*] **in** [[*numdays:*]*numhours:*]*nummin* {**oneshot** | **recurring**}
7. **policy-list** *list-name*
8. **end**

### DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
Step 2	<b>configure terminal</b>  <b>Example:</b> Router# configure terminal	Enters global configuration mode.
Step 3	<b>kron policy-list</b> <i>list-name</i>  <b>Example:</b> Router(config)# kron policy-list save-config	Specifies a name for a new or existing Command Scheduler policy list and enters kron-policy configuration mode. <ul style="list-style-type: none"> <li>• If the value of the <i>list-name</i> argument is new, a new policy list structure is created.</li> <li>• If the value of the <i>list-name</i> argument exists, the existing policy list structure is accessed. No editor function is available, and the policy list is run in the order in which it was configured.</li> </ul>
Step 4	<b>cli write</b>  <b>Example:</b> Router(config-kron-policy)# cli write	Specifies the fully-qualified EXEC command and associated syntax to be added as an entry in the Command Scheduler policy list.

	Command or Action	Purpose
Step 5	<b>exit</b>  <b>Example:</b> Router(config-kron-policy)# exit	Returns to global configuration mode.
Step 6	<b>kron occurrence</b> <i>occurrence-name</i> [ <b>user</b> <i>username</i> ] [[ <b>in</b> <i>numdays:</i> ] <i>numhours:</i> ] <i>nummin</i> { <b>oneshot</b>   <b>recurring</b> }  <b>Example:</b> Router(config)# kron occurrence backup in 30 recurring	Specifies schedule parameters for a Command Scheduler occurrence and enters kron-occurrence configuration mode. <ul style="list-style-type: none"> <li>• We recommend that you configure your router to save your configuration every 30 minutes.</li> <li>• <i>occurrence-name</i>—Specifies the name of the occurrence. Length of occurrence-name is from 1 to 31 characters. If the occurrence-name is new, an occurrence structure is created. If the occurrence-name is not new, the existing occurrence is edited.</li> <li>• <b>user</b>—(Optional) Used to identify a particular user.</li> <li>• <i>username</i>—Name of user.</li> <li>• <b>in</b>—Identifies that the occurrence is to run after a specified time interval. The timer starts when the occurrence is configured.</li> <li>• <i>numdays:</i>—(Optional) Number of days. If used, add a colon after the number.</li> <li>• <i>numhours:</i>—(Optional) Number of hours. If used, add a colon after the number.</li> <li>• <i>nummin:</i>—(Optional) Number of minutes.</li> <li>• <b>oneshot</b>—Identifies that the occurrence is to run only one time. After the occurrence has run, the configuration is removed.</li> <li>• <b>recurring</b>—Identifies that the occurrence is to run on a recurring basis.</li> </ul>
Step 7	<b>policy-list</b> <i>list-name</i>  <b>Example:</b> Router(config-kron-occurrence)# policy-list save-config	Specifies a Command Scheduler policy list.
Step 8	<b>end</b>  <b>Example:</b> Router(config-kron-occurrence)# end	Returns to privileged EXEC mode.

## Provide the Installation Technician with the Required Information

Before the installation technician can assign extension numbers to the new phones, you must provide the following information:

- How many phones the installation technician can plug in at one time. This is determined by the number of temporary MAC addresses that you configured.
  - Which extension number to dial to access the extension assigner application.
  - Whether the number is dialed automatically when a phone goes off hook.
  - What password to enter to access the application.
  - Which tag numbers to enter to assign an extension to each phone.
- 

## Configuring Extension Assigner Synchronization

This section contains the following tasks:

- [Configuring the XML Interface for the Secondary Backup Router, page 347](#)
- [Configuring Extension Assigner Synchronization on the Primary Router, page 348](#)

### Configuring the XML Interface for the Secondary Backup Router

To configure the secondary backup router to activate the XML interface required to receive configuration change information from the primary router, perform the following steps.

#### Prerequisites

- The XML interface, provided through the Cisco IOS XML Infrastructure (IXI), must be configured. See the [“Configuring the XML API” section on page 1615](#).

#### Restrictions

- Automatic synchronization for new or replacement routers is not supported.
- Extension assigner preconfiguration must be manually performed on the secondary backup router.

#### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **telephony-service**
4. **xml user** *user-name* **password** *password* *privilege-level*
5. **end**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"><li>• Enter your password if prompted.</li></ul>
Step 2	<b>configure terminal</b>  <b>Example:</b> Router# configure terminal	Enters global configuration mode.
Step 3	<b>telephony-service</b>  <b>Example:</b> Router(config)# telephony-service	Enters telephony service configuration mode.
Step 4	<b>xml user user-name password password privilege-level</b>  <b>Example:</b> Router(config-telephony)# xml user user23 password 3Rs92uzQ 15	Defines an authorized user. <ul style="list-style-type: none"><li>• <i>user-name</i>: Username of the authorized user.</li><li>• <i>password</i>: Password to use for access.</li><li>• <i>privilege-level</i>: Level of access to Cisco IOS commands to be granted to this user. Only the commands with the same or a lower level can be executed via XML. Range is 0 to 15.</li></ul>
Step 5	<b>end</b>  <b>Example:</b> Router(config-telephony)# end	Returns to privileged EXEC mode.

## Configuring Extension Assigner Synchronization on the Primary Router

To configure the primary router to enable automatic synchronization to the secondary backup router, perform the following steps.

## Prerequisites

- XML interface for secondary backup router is configured. See the [“Configuring the XML Interface for the Secondary Backup Router”](#) section on page 347.
- The secondary backup router’s IP address must already be configured using the **ip source-address** command in telephony-service configuration mode.

## SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **telephony-service**
4. **standby username username password password**
5. **end**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>Enter your password if prompted.</li> </ul>
Step 2	<b>configure terminal</b>  <b>Example:</b> Router# configure terminal	Enters global configuration mode.
Step 3	<b>telephony-service</b>  <b>Example:</b> Router(config)# telephony-service	Enters telephony service configuration mode.
Step 4	<b>standby username username password password</b>  <b>Example:</b> Router(config-telephony)# standby username user23 password 3Rs92uzQ	Defines an authorized user. <ul style="list-style-type: none"> <li>Same username and password that was previously defined for the XML interface on the secondary backup router.</li> </ul>
Step 5	<b>end</b>  <b>Example:</b> Router(config-telephony)# end	Returns to privileged EXEC mode.

## Assigning Extension Numbers Onsite by Using Extension Assigner

The following tasks are performed by the installation technician at the customer's site

- [Assigning New Extension Numbers, page 349](#)
- [Unassigning an Extension Number, page 350](#)
- [Reassigning the Current Extension Number, page 350](#)

### Assigning New Extension Numbers

Initially, when you install a phone, it is assigned a temporary, random extension number. To access Extension Assigner and assign the appropriate extension number to this phone, perform the following steps.

- |               |   |
|---------------|---|
| <b>Step 1</b> | Get the information you need to use extension assigner from your system administrator. For a list of this information, see the <a href="#">“Provide the Installation Technician with the Required Information”</a> section on page 347. |
| <b>Step 2</b> | Dial the appropriate extension number to access the extension assigner system.  |
| <b>Step 3</b> | Enter the password for the extension assigner and press #.  |
| <b>Step 4</b> | Enter the ID number that represents this phone's extension and press #.   |

- Step 5** If the extension is not assigned to another phone, press **1** to confirm that you want to assign the extension to your phone, then hang up. After the phone resets, the assignment is complete.
- Step 6** If the extension is assigned to another phone that is idle:
- Press **2** to confirm that you want to unassign the extension from the other phone.
  - Hang up.
  - Repeat this procedure beginning at [Step 2](#).
- Step 7** If the extension is assigned to another phone that is in use, either:
- Return to [Step 5](#) to enter another extension number.
  - Perform the procedures in the “[Unassigning an Extension Number](#)” section on page 350 and then repeat this procedure beginning at [Step 2](#).
- 

## Unassigning an Extension Number

After the new extension number is assigned, you may find that you assigned the wrong number or that your original dial plan has changed. To unassign the wrong number so that it can be used by another phone, perform the following steps.

- 
- Step 1** Get the information you need to use extension assigner from your system administrator. For a list of this information, see the “[Provide the Installation Technician with the Required Information](#)” section on [page 347](#).
- Step 2** Dial the appropriate extension number to access the extension assigner system.
- Step 3** Enter the password for the extension assigner and press **#**.
- Step 4** Enter the ID number that represents this phone’s extension and press **#**.
- Step 5** When you enter the ID number for the extension that is currently assigned to this phone, you are prompted to press **2** to confirm that you want to unassign the extension from the phone.
- Step 6** Hang up.
- 

## Reassigning the Current Extension Number

- If you must replace a broken phone or you want to reassign an extension number, perform the following steps.



### Note

You can reassign a number to a phone only if that number:

- Is not assigned to another phone
  - Is assigned to another phone and that phone is idle
  - Is assigned to another phone and you first unassign the extension
-



- 
- Step 1** Get the information you need to use extension assigner from your system administrator. For a list of this information, see the [“Provide the Installation Technician with the Required Information”](#) section on page 347.
- Step 2** Dial the appropriate extension number to access the extension assigner system.
- Step 3** Enter the password for the extension assigner and press #.
- Step 4** Enter the ID number that represents this phone’s extension and press #.
- Step 5** If the extension is not assigned to another phone, press **1** to confirm that you want to assign the extension to your phone, then hang up. After the phone resets, the reassignment is complete.
- Step 6** If the extension is assigned to another phone that is idle:
- Press **2** to confirm that you want to unassign the extension from the other phone.
  - Hang up
  - Perform the procedure in the [“Assigning New Extension Numbers”](#) section on page 349.
- Step 7** If the extension is assigned to another phone that is in use, either:
- Return to [Step 5](#) to enter another extension number.
  - Perform the procedures in the [“Unassigning an Extension Number”](#) section on page 350 and the [“Assigning New Extension Numbers”](#) section on page 349.
- 

## Verifying Extension Assigner

- 
- Step 1** Use the **debug ephone extension-assigner** command to display status messages produced by the extension assigner application.
- ```
*Jun 9 19:08:10.627: ephone_query: inCallID=47, tag=4, ephone_tag=4
*Jun 9 19:08:10.627: extAssigner_IsEphoneMacPreset: ephone_tag = 4,
ipKeyswitch.max_ephones = 96
*Jun 9 19:08:10.627: extAssigner_IsEphoneMacPreset: ephone_ptr->mac_addr_str =
000B46BDE075, MAC_EXT_RESERVED_VALUE = 02EAEAEA0000
*Jun 9 19:08:10.627: SkinnyGetActivePhoneIndexFromCallid: callID = 47
*Jun 9 19:08:10.627: SkinnyGetActivePhoneIndexFromCallid: vdbPtr->physical_interface_type
(26); CV_VOICE_EFXS (26)
*Jun 9 19:08:10.627: SkinnyGetActivePhoneIndexFromCallid: vdbPtr->type (6);
CC_IF_TELEPHONY (6)
*Jun 9 19:08:10.627: SkinnyGetActivePhoneIndexFromCallid: http->sig_type (26);
CV_VOICE_EFXS (26)
*Jun 9 19:08:10.627: SkinnyGetActivePhoneIndexFromCallid: dn = 4, chan = 1
*Jun 9 19:08:10.627: ephone_query: EXTASSIGNER_RC_SLOT_ASSIGNED_TO_CALLING_PHONE
*Jun 9 19:08:22.763: ephone_unassign: inCallID=47, tag=4, ephone_tag=4
*Jun 9 19:08:22.763: extAssigner_IsEphoneMacPreset: ephone_tag = 4,
ipKeyswitch.max_ephones = 96
*Jun 9 19:08:22.763: extAssigner_IsEphoneMacPreset: ephone_ptr->mac_addr_str =
000B46BDE075, MAC_EXT_RESERVED_VALUE = 02EAEAEA0000
*Jun 9 19:08:22.763: is_ephone_auto_assigned: button-1 dn_tag=4
*Jun 9 19:08:22.763: is_ephone_auto_assigned: NO
*Jun 9 19:08:22.763: SkinnyGetActivePhoneIndexFromCallid: callID = 47
*Jun 9 19:08:22.763: SkinnyGetActivePhoneIndexFromCallid: vdbPtr->physical_interface_type
(26); CV_VOICE_EFXS (26)
*Jun 9 19:08:22.767: SkinnyGetActivePhoneIndexFromCallid: vdbPtr->type (6);
CC_IF_TELEPHONY (6)
```

```

*Jun 9 19:08:22.767: SkinnyGetActivePhoneIndexFromCallid: http->sig_type (26);
CV_VOICE_EFXS (26)
*Jun 9 19:08:22.767: SkinnyGetActivePhoneIndexFromCallid: dn = 4, chan = 1
*Jun 9 19:08:29.795: ephone-4[8]:fStationOnHookMessage: Extension Assigner request
restart, cmd=2, new mac=02EAEAEA0004, ephone_tag=4
*Jun 9 19:08:30.063: %IPPHONE-6-UNREGISTER_NORMAL: ephone-4:SEP000B46BDE075 IP:5.5.0.1
Socket:8 DeviceType:Phone has unregistered normally.
*Jun 9 19:08:30.063: ephone-4[8]:[SEP000B46BDE075]:extAssigner_assign: new
mac=02EAEAEA0004, ephone_tag=4
*Jun 9 19:08:30.063: extAssigner_simple_assign: mac=02EAEAEA0004, tag=4
*Jun 9 19:08:30.063: ephone_updateCNF: update cnf_file ephone_tag=4
*Jun 9 19:08:30.063: extAssigner_assign: restart again (mac=02EAEAEA0004) ephone_tag=4
*Jun 9 19:08:30.131: %IPPHONE-6-REG_ALARM: 23: Name=SEP000B46BDE075 Load=8.0(2.0)
Last=Reset-Restart
*Jun 9 19:08:30.135: %IPPHONE-6-REGISTER_NEW: ephone-7:SEP000B46BDE075 IP:5.5.0.1
Socket:10 DeviceType:Phone has registered.
*Jun 9 19:08:30.503: %IPPHONE-6-UNREGISTER_NORMAL: ephone-7:SEP000B46BDE075 IP:5.5.0.1
Socket:10 DeviceType:Phone has unregistered normally.
*Jun 9 19:08:43.127: %IPPHONE-6-REG_ALARM: 22: Name=SEP000B46BDE075 Load=8.0(2.0)
Last=Reset-Reset
*Jun 9 19:08:43.131: %IPPHONE-6-REGISTER: ephone-7:SEP000B46BDE075 IP:5.5.0.1 Socket:13
DeviceType:Phone has registered.

```

**Step 2** Use the **debug voip application script** command to display status messages produced by the server as it runs the assigner application Tcl script.

```

Jun 20 23:17:45.795: //22//TCL :/tcl_PutsObjCmd: TCL: ***** >>> app-cme-ea-2.0.0.0.tcl <<<
*****
Jun 20 23:17:45.799: //22//TCL :/tcl_PutsObjCmd: TCL: ***** >>> Cisco CME Extension
Assigner Application <<< *****
Jun 20 23:17:45.799: //22//TCL :/tcl_PutsObjCmd: >>> PROMPT: Enter password <<<
Jun 20 23:17:54.559: //22//TCL :/tcl_PutsObjCmd: >>> Collect Password Status = cd_005 <<<
Jun 20 23:17:54.563: //22//TCL :/tcl_PutsObjCmd: >>> INFO: Authentication Successful <<<
Jun 20 23:17:54.563: //22//TCL :/tcl_PutsObjCmd: >>> PROMPT: Please enter the phone tag
number followed by the # key. Press * to re-enter the tag number <<<
Jun 20 23:17:59.839: //22//TCL :/tcl_PutsObjCmd: >>> Ephone TAG Digit Collect Status =
cd_005 <<<
Jun 20 23:17:59.843: //22//TCL :/tcl_PutsObjCmd: >>> INFO: Phone Query result = 1 <<<
Jun 20 23:17:59.843: //22//TCL :/tcl_PutsObjCmd: >>> PROMPT: Ephone Tag 6 is available
<<<
Jun 20 23:17:59.843: //22//TCL :/tcl_PutsObjCmd: >>> PROMPT: To assign extension to Phone,
press 1 to confirm, 9 to cancel <<<
Jun 20 23:17:59.851: //22//TCL :/tcl_PutsObjCmd: >>> INFO: ephone 6 is available <<<
Jun 20 23:18:20.375: //22//TCL :/tcl_PutsObjCmd: >>> INFO: TAPS Status = cd_005 <<<
Jun 20 23:18:20.379: //22//TCL :/tcl_PutsObjCmd: >>> PROMPT: Extension assignment is
successful <<<
Jun 20 23:18:20.379: //22//TCL :/tcl_PutsObjCmd: >>> INFO: Ephone extension is assigned
successfully <<<
Jun 20 23:18:28.975: //22//TCL :/tcl_PutsObjCmd: ***** >>> TCL: Closing Cisco CM

```

**Step 3** Use the **debug ephone state** command as described in the [Cisco IOS Debug Command Reference](#).

## Configuration Examples for Extension Assigner

This section contains the following examples:

- [Extension Assigner: Example, page 353](#)
- [Extension Assigner Synchronization: Example, page 355](#)

## Extension Assigner: Example

This example shows a router configuration with the following characteristics:

- The extension that the installation technician dials to access the extension assigner application is 0999.
- The password that the installation technician enters to access the extension assigner application is 1234.
- The **auto assign** command is configured to assign extensions 0001 to 0005.
- The installation technician can use extension assigner to assign extension numbers 6001 to 6005.
- The extension assigner uses the provision-tag to identify which ephone configuration and extension numbers to assign to the phone.
- The **auto-reg-ephone** command is shown but required, since it is enabled by default.
- The **kron** command is used to automatically save the router configuration.
- The max-ephone and max-dn settings of 51 are high enough to allow the installation technician to assign extensions to 50 phones, plugging them in one at a time. If the installation technician is assigning extensions to 40 phones, 11 can be plugged in one at a time. The exception is if you use Cisco VG224 Analog Voice Gateways. Extension assigner creates 24 ephones for each Cisco VG224 Analog Voice Gateway, one for each port.

Router# **show running-config**

```

version 12.4
no service password-encryption
!
hostname Test-Router
!
boot-start-marker
boot system flash:c2800nm-ipvoice-mz.2006-05-31.GOPED_DEV
boot-end-marker
!
enable password ww
!
no aaa new-model
!
resource policy
!
ip cef
no ip dhcp use vrf connected
!
ip dhcp pool pool21
    network 172.21.0.0 255.255.0.0
    default-router 172.21.200.200
    option 150 ip 172.30.1.60
!
no ip domain lookup
!
application
    service EA flash:ea/app-cme-ea-2.0.0.0.tcl
    paramspace english index 0
    paramspace english language en
    param ea-password 1234
    paramspace english location flash:ea/
    paramspace english prefix en
!
interface GigabitEthernet0/0
    no ip address

```

```

duplex auto
speed 100
no keepalive
!
interface GigabitEthernet0/0.21
encapsulation dot1Q 21
ip address 172.21.200.200 255.255.0.0

ip http server
!
control-plane
!
dial-peer voice 999 voip
service EA out-bound
destination-pattern 0999
session target ipv4:172.21.200.200
dtmf-relay h245-alphanumeric
codec g711ulaw
no vad
!
telephony-service
extension-assigner tag-type provision-tag
max-ephones 51
max-dn 51
ip source-address 172.21.200.200 port 2000
auto-reg-ephone
auto assign 101 to 105
system message Test-CME
create cnf-files version-stamp 7960 Jun 14 2006 05:37:34
!
ephone-dn 1 dual-line
number 6001
!
ephone-dn 2 dual-line
number 6002
!
ephone-dn 3 dual-line
number 6003
!
ephone-dn 4 dual-line
number 6004
!
ephone-dn 5 dual-line
number 6005
!
ephone-dn 101
number 0101
label Temp-Line-not assigned yet
!
ephone-dn 102
number 0102
label Temp-Line-not assigned yet
!
ephone-dn 103
number 0103
label Temp-Line-not assigned yet
!
ephone-dn 104
number 0104
label Temp-Line-not assigned yet
!
ephone-dn 105
number 0105
label Temp-Line-not assigned yet

```

```

!
ephone 1
  provision-tag 101
  mac-address 02EA.EAEA.0001
  button 1:1
!
ephone 2
  provision-tag 102
  mac-address 02EA.EAEA.0002
  button 1:2
!
ephone 3
  provision-tag 103
  mac-address 02EA.EAEA.0003
  button 1:3
!
ephone 4
  provision-tag 104
  mac-address 02EA.EAEA.0004
  button 1:4
!
ephone 5
  provision-tag 105
  mac-address 02EA.EAEA.0005
  button 1:5
!
kron occurrence backup in 30 recurring
policy-list writeconfig
!
kron policy-list writeconfig
cli write
!
line con 0
line aux 0
line vty 0 4
  logging synchronous
!
no scheduler max-task-time
scheduler allocate 20000 1000
!
end

```

## Extension Assigner Synchronization: Example

### Primary Router: Example

The extension assigner is authorized to send configuration change information from the primary router to the secondary backup router.

```

telephony-service
  standby username user555 password purplehat

```

### Secondary Backup Router: Example

System components are enabled and the XML interface is readied to receive configuration change information.

```

ip http server
ixi transport http
  no shutdown
ixi application cme
  no shutdown

```

```
telephony-service
xml user user555 password purplehat 15
```

## Additional References

The following sections provide references related to extension assigner.

### Related Documents

| Related Topic                             | Document Title                                                                                                                                                                          |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cisco Unified CME configuration           | <ul style="list-style-type: none"> <li><a href="#">Cisco Unified CME Command Reference</a></li> <li><a href="#">Cisco Unified CME Documentation Roadmap</a></li> </ul>                  |
| Cisco IOS commands                        | <ul style="list-style-type: none"> <li><a href="#">Cisco IOS Voice Command Reference</a></li> <li><a href="#">Cisco IOS Software Releases 12.4T Command References</a></li> </ul>       |
| Cisco IOS configuration                   | <ul style="list-style-type: none"> <li><a href="#">Cisco IOS Voice Configuration Library</a></li> <li><a href="#">Cisco IOS Software Releases 12.4T Configuration Guides</a></li> </ul> |
| Phone documentation for Cisco Unified CME | <ul style="list-style-type: none"> <li><a href="#">User Documentation for Cisco Unified IP Phones</a></li> </ul>                                                                        |

### Technical Assistance

| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Link                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p> | <a href="http://www.cisco.com/techsupport">http://www.cisco.com/techsupport</a> |

# Feature Information for Extension Assigner

Table 28 lists the features in this module and enhancements to the features by version.

To determine the correct Cisco IOS release to support a specific Cisco Unified CME version, see the *Cisco Unified CME and Cisco IOS Software Version Compatibility Matrix* at [http://www.cisco.com/en/US/docs/voice\\_ip\\_comm/cucme/requirements/guide/33matrix.htm](http://www.cisco.com/en/US/docs/voice_ip_comm/cucme/requirements/guide/33matrix.htm).

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which Cisco IOS software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.



**Note**

Table 28 lists the Cisco Unified CME version that introduced support for a given feature. Unless noted otherwise, subsequent versions of Cisco Unified CME software also support that feature.

**Table 28**      **Feature Information for Extension Assigner**

| Feature Name                       | Cisco Unified CME Version | Feature Information                                                                                                          |
|------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Extension Assigner Synchronization | 4.2(1)                    | Enables the secondary backup router to automatically receive any changes made to ephone mac-addresses in the primary router. |
| Extension Assigner                 | 4.0(3)                    | Enables installation technicians to assign extension numbers to Cisco Unified CME phones without accessing the server.       |

