

Cisco IP Phone Services Software Development Kit (SDK) v4.1(1)



The Cisco IP Phone Services SDK provides software libraries, API documentation, and sample applications for developers of IP Telephony Applications. This SDK contains sample ASP/Javascript and JSP/Java programs that serve as templates for a variety of applications including web content delivery, Computer-Telephony Integration (CTI), voice streaming, and CallManager API access.

For more information on Cisco IP Telephony Applications and partners, visit the Applications Central website at <http://www.cisco.com/go/apps>

Requirements:

- Microsoft IIS 4.0 or later (for ASP sample services)
See [Installing ASP Samples](#) for additional information
- Sun J2SE 1.4.2 or later and Tomcat 4.0 or later (for JSP sample services)
See [Installing JSP Samples](#) for additional information
- Internet Connection to external websites like Yahoo.com, Cnn.com etc.
- Cisco Call Manager 4.1(1) or later.
- Cisco 7905, 7912, 7920, 7940, 7960, 7970 or other XML services-enabled IP Phone

Contents:

I. Documentation

- a. Cisco IP Services Development Notes (in pdf format)
- b. Cisco URL Proxy Guide (Rich Text Format)
- c. Cisco LDAP Programming Guide (Word format)
- d. Cisco CIP Image Release Notes (Word format)

e. Cisco IP Applications Samples (Word format)

II. Development Tools

- a. Cip.8bi - Photoshop plug-in that allows .cip extensions to be viewed and saved
- b. Cip2Gif.exe - DOS based program which converts cip files to gif
- c. Gif2Cip.exe - DOS based program which converts gif files to cip
- d. ImageViewer.exe - Windows application that displays cip graphic files
- e. Cisco CIPImage - used for converting images to/from CIP images (automatically installed)
- f. Cisco URL Proxy - Proxy server needed to use the sample services (automatically installed)
- g. Cisco LDAP Search - Service installed to do LDAP searches (automatically installed)
- h. Microsoft XML Parser (MXSML) 3.0 - used for parsing XML data (automatically installed)
- i. Cisco IP Phone Services ASP/Javascript Library (automatically installed)
- j. Cisco IP Phone Services Java Library - used by the JSP apps (manually installed - see JSP Install readme)
- k. CallManager Simulator - used for developing Phone Services without a CallManager server
- l. Cisco IP Phone XML Schema (.xsd) file - used with an XML editor to validate XML syntax

III. Sample Applications

1. Weather forecast lookup for any city (ASP)

This service will enable user to enter a city, state, or zip code, and get weekly weather forecast. The current, low and high temperatures for the day and summary of the forecast will be displayed.

Here service retrieves the weather information from CNN weather website

<http://weather.cnnaudience.com/cgi-bin/weather/redirect> for given city zip code. If user provides city name and state then corresponding city zip code is obtained from website

<http://generalsearch.com/AreaCode/index.php>.

2. Currency Exchange Rates and Converter (ASP)

This service will allow users to select a currency and view its exchange rate and perform conversions with it. The currency type is entered by specific currency codes (ex: USD for US Dollar, JPY Japanese Yen etc.).

Here Service retrieves the currency Exchange information from Yahoo finance page:

<http://finance.yahoo.com/q>

3. UPS Rates & tracking (ASP)

This service will display the current UPS rates depending upon the specified Source - destination zip

code, package type, package weight and type of UPS Services. The Package type can be of: Your Packaging, UPS letter envelope, UPS Express box, UPS tube etc. The Service type can be: Regular daily pickup, on call air, on time pickup, Drop box letter center, Custom counter etc. The Service for tracking for package is also included in this sample.

The UPS rate information is obtained from UPS web site:

<http://ups.com/using/services/rave/qcosthtm.cgi>.

4. World Clock (ASP)

This service will show the current time for given city.

The current time information is obtained from web site: [http://timeanddate.com/worldclock/results.html?query="+query_str](http://timeanddate.com/worldclock/results.html?query=).

6. Measurement conversions (ASP)

This service will provide conversion of various measurements like distance, volume, and temperature between English and Metric systems..

7. US White pages/Yellow Pages search (ASP)

This service will enable users to search for businesses by category, city/state or Company by Name , city/state.

This service uses the Yellow pages service given by Mapquest web site: <http://www.mapquest.com/cgi-bin/database>

8. Calendar (ASP)

This service enables the user to see a calendar on the graphic display of their phone.

9. Stock Ticker (ASP)

This service uses www.yahoo.com to display the current stock price of CSCO.

10. Stock Chart (ASP)

This service uses www.yahoo.com to display a graphic of the CSCO stock price over the past fiscal year.

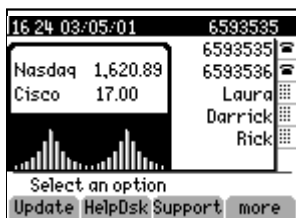
11. Push2Phone (ASP and JSP)

	Push2Phone provides a form to enter a message to be sent to a group of phones. A text message is entered, a group of phones are selected from a list, and Send send's the message. The list of phones is generated by querying the CallManager database via the AVVID XML-Layer Database API (AXL).
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12. Click2Dial (ASP and JSP)

Click2Dial provides a web-based directory with Click-To-Dial capabilities. Click2Dial accesses an LDAP directory and generates a table of users with their directory information. The page returns the directory numbers as hyperlinks which allows you to click on a users phone number and your phone automatically goes off-hook (speakerphone) and dials the number.

13. IdleURL (ASP)



As the name implies, IdleURL is intended to be called when the phone is idle. IdleURL provides a dashboard display of important information. IdleURL combines the extensions and speed dials on the phone along with a logo file and some current stock quotes - this provides an Idle URL service which combines text and graphics and does NOT obscure the extension and speed dial labels.

14. MConference (JSP)



MConference is a sample application which allows users to create, join, and control IP multicast conferences from an XML phone service. It's a good example of the power of XML services and IP multicast - providing a large-scale (thousands of participants), arbitrated conference using a simple web application. Conference arbitration can be enabled/disabled by the conference owner. When arbitration is enabled participants must request permission which is then granted by the conference owner. When conference arbitration is disabled, participants can simply push-to-talk, similar to a hoot-and-holler network.

15. Hootie (ASP)

Hootie is a simple Hoot-and-Holler application utilizing the IP multicast streaming and mixing capabilities of Cisco IP Phones.

16. InterCom (ASP)

Intercom allows a direct intercom feature between two IP phones. It is a simple example of how to use the RTP streaming URIs to stream voice.

17. JPEGViewer (ASP)



JPEGViewer is a slide-show application for IP Phones. It will look for all JPEG files in a specified directory and automatically convert the JPEG images to CIP format and return it to the phone for display.

18. Logo (ASP)



Logo provides a quick and easy method to get company logos or other graphics to display on a Cisco IP Phone. It would typically be used as an Idle URL service.

19. Clock (ASP)



Creates a large, 7-segment clock on the IP phone display - perfect for conference rooms and shared areas where you always want a clock handy. Typically used as an Idle URL Service.

20. Personal Service (ASP)

Personal Service is a Service which allows users to define their own custom service URL. This is particularly useful for developers since they can point to their own Service or menu of Services without needing CallManager admin access to define new IP Phone Services. Also useful for users who may want to point to the Internet for their own personal XML services.

20. WaterMark (ASP)



Watermark is a simple service which overlays Text on top of an image for a 'watermarked' affect. Provides an example of how to use the SDK's Javascript/ASP Library methods for combining graphics and text.

21. Extension Mobility Controller (JSP)

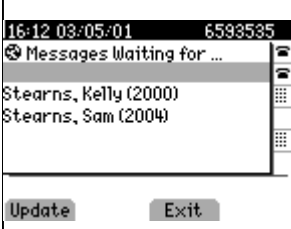
This sample illustrates the basics of accessing the Extension Mobility API via the Java Library EMProvider class.

Call this page from a standard web browser (not from an IP Phone) and you can query and control Extension Mobility login status for users and phones.

22. Speed Dials (JSP)

	SpeedDials allows users to configure their personal SpeedDials (not FastDials) directly from their phone (via a phone service). Personal SpeedDials are normally only accessible thru the CallManager user pages (from an HTML browser).
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23. Group MWI (JSP)

	GroupMWI accepts a list of vmal extensions and their partition and returns a list extensions/users who have voicemails waiting (MWI status is On). GroupMWI works by querying the CallManager AXL interface using SOAP/XML to retrieve the MWI status from the CallManager database. It could be used for shared-area phones where roaming users (often away from their desk) can quickly check to see if they have new voicemails - possibly used as an Idle URL.
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24. AutoDialer (JSP)

AutoDialer is a simple example of how a custom phone service can be used to dial numbers which require pauses in the dialing sequence - account codes, long distance services, calling cards, voicemail access, etc. When the user subscribes to the AutoDialer Phone Service, they will be required to enter a dial string. When the user invokes the AutoDialer service from their phone, their specified dial string will be dialed.

25. PhotoDirectory (JSP)

	PhotoDirectory is an LDAP directory search service with advanced capabilities beyond those of the standard, embedded directories on CallManager. PhotoDirectory, as the name implies, retrieves a photo of the user (if available) along with other more detailed LDAP information such as userID, department,
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and manager. It also provides a Manager softkey which allows you retrieve directory info for a user's manager and "step up" thru the management chain.

26. CallerInfo (JSP)



CallerInfo is an example of an integrated CTI (JTAPI) and XML services application. CallerInfo works with PhotoDirectory to provide call party information for active calls on IP phones. CallerInfo works both in "pull" and "push" mode. In "pull" mode, the user invokes the CallerInfo service from the Services menu and CallerInfo redirects the request to PhotoDirectory and supplies the identity of the user at the other end of the current active call. In "push" mode, the CallerInfoServer application pushes the PhotoDirectory URL to the phone as soon as an inbound call is answered by the user.

26. PushAuthenticate (ASP)

PushAuthenticate is NOT is an IP Phone Service. PushAuthenticate is a sample script which can be used to offload authentication requests from the CallManager server. Many IP Phones Services (such as Push2Phone in this SDK) take advantage of the IP phone's HTTP server to PUSH information and commands. For large-scale applications, PUSHing to hundreds or thousands of devices, this can cause performance problems with the authenticate.asp script running on CallManager. The problem arises from the fact that all of these devices (phones) must be associated to a single userID/password (known by the PUSH application) so that the application can PUSH to all phones - this causes considerable overhead when processing the authenticate.asp script on CallManager.

A better approach is to change the Authentication URL in CallManager Admin to point to an external authentication script, such as this one, which first checks for a specific userID/password (used by the PUSH application) and returns AUTHORIZED if it matches. If the userID/password is not matched by the PushAuthenticate script, it calls the authenticate.asp script on CallManager and "proxies" the authentication request from the phone. This allows you to offload the PUSH authentication to an external webserver while still using standard CallManager authentication for all other purposes.

27. ScreenShot (ASP)

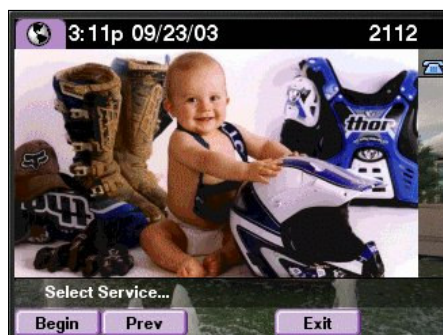
Screenshot retrieves the current image from an IP Phone display, converts the XML to GIF format, and returns it back to the requesting HTML browser for display.

Quick and easy way to capture a screenshot of what's happening on an IP Phone for troubleshooting or documentation purposes.

28. Integrating RS-232 devices with IP Telephony Applications (OtherApps)

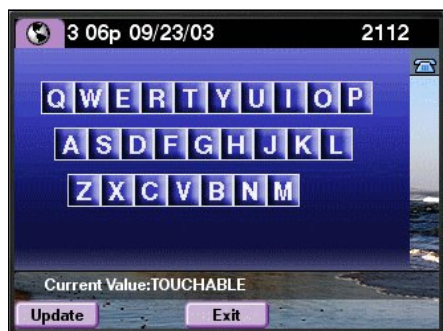
Code and documentation is provided for using the Lantronix UDS100 device server to connect RS-232 devices to the network and integrate serial endpoints with IP Telephony applications. Example scenario uses a Magtek mini card-swipe reader, but could be easily extended to any serial device - bar code scanner, authentication devices (fingerprint, retinal scan), security sensors/systems, etc. See the [Lantronix Application Extension SDK for Cisco IP Phones](#) for more details.

29. PNGViewer (ASP)



A slideshow viewer app based on the previous JPEGViewer sample app. PNGViewer provides color PNG images to the new IP Phones capable of displaying PNG images, like the 7970.

30. Keyboard (ASP)



Keyboard is a sample app which uses the new CiscoIPPhoneGraphicFileMenu object to provide an on-screen keyboard. This app will only run on the new touchscreen-enabled IP phones, like the 7970.

31. MultiDirectory (ASP)

MultiDirectory uses the LDAPSearch COM server to query against multiple LDAP directories and consolidate the response. The primary use of this app would be for LDAP searches across multiple CallManager clusters or any installation where a single, consolidated LDAP directory does not exist.

32. Localized Directory (ASP)

LocalizedDirectory uses the LDAPSearch COM server to access a generic LDAP directory and takes advantage of the new capabilities in LDAPSearch 2.0 to create localized, multi-lingual XML directory objects.

33. Phone Push Step and Subsystem (IPCC Express / CRS)

The Phone Push Step and Subsystem can be added to an IPCC Express/CRS server to provide a mechanism for pushing XML objects to an IP Phone from within a script. The Phone Push Step is completely integrated with script editor and engine, so it provides the same drag-and-drop editing

capability as the rest of the built-in Steps, as well as Subsystem control and debugging from the standard server admin pages.

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