Cisco IOS VoiceXML Browser

Q. What is VoiceXML?

A. Voice Extensible Markup Language (VoiceXML) is an XML-based creation environment for voice applications including user interfaces for use with automatic-speech-recognition (ASR) and text-to-speech (TTS) processing. VoiceXML specifications are maintained and published by the World Wide Web Consortium (W3C). For more information, go to:
http://www.w3.org/

Additional information and pointers to the specifications can also be found at the VoiceXML Forum site at: http://www.voicexml.org/

Q. What is a VoiceXML browser?

A. The VoiceXML browser (also known as an interpreter) operates like a Web browser, but instead of mouse clicks and keyboard strokes, the VoiceXML browser accepts dual tone multifrequency (DTMF) or speech as input, generally in response to prompts or menu options. And instead of displaying text or graphics to the user, it plays prerecorded or synthesized TTS responses.

Q. Which platforms support the Cisco IOS VoiceXML Browser?

A. Cisco IOS VoiceXML Browser sessions are supported and recommended on the Cisco 2800 and 3800 Integrated Services Routers, the Cisco 3700 Series Multiservice Access Routers, and the Cisco AS5400HPX, AS5350XM, and AS5400XM Universal Gateways. Performance, stress, and regression tests are periodically performed and published on a representative number of these platforms.

Technically, the Cisco 1751 and 1760 Modular Access Routers, the Cisco 2600XM Series, and the Cisco 2691 Multiservice Platform also support the Cisco VoiceXML Browser; however, end-of-sale for these products was announced on March 27, 2006 (Product Bulletin No. EOL1022) and they are not recommended for Cisco IOS VoiceXML Browser sessions.

The Cisco 3600 Series is also technically supported on Cisco IOS Software Mainline Releases 12.4 and 12.3 for the Cisco 3640A and 3660 (Release 12.4) and Cisco 3620 (Release 12.3) Multiservice Platforms, but these products are nearing end of software support. Therefore, these products are not recommended for use with the Cisco IOS VoiceXML Browser.

Likewise, although the Cisco AS5850 Universal Gateway also supports the Cisco IOS VoiceXML Browser, it is not a recommended platform because VoiceXML calls must be process switched on the Cisco AS5850. The Cisco AS5850 is optimized for distributed switching and supports far fewer calls when process switching.

Table 1 lists supported platforms for the Cisco IOS VoiceXML Browser.

Table 1. Supported Platforms for Cisco IOS VoiceXML Browser

Platform	Support Status
Cisco 1751 and 1760	Not recommended
Cisco 2600XM Series and Cisco 2691	Not recommended
Cisco 2800 Series Integrated Services Routers	Supported

Cisco 3600	Not recommended
Cisco 3700 Series	Supported
Cisco 3800 Series Integrated Services Routers	Supported
Cisco 5400HPX	Supported
Cisco 5350XM	Supported
Cisco 5400XM	Supported
Cisco AS5850	Not recommended

Q. **What version of W3C VoiceXML does the Cisco IOS VoiceXML Browser support?**

A. Beginning with Cisco IOS Software Release 12.4(11)T, the Cisco IOS VoiceXML Browser conforms to the W3C standard VoiceXML 2.0, dated March 2004:
http://www.w3.org/TR/voicexml20/

In releases preceding Cisco IOS Software Release 12.4(11)T, the Cisco IOS VoiceXML Browser is based on the W3C interim release of prestandard VoiceXML 2.0, dated April 24, 2002. Cisco IOS Software Release 12.4(11)T is backward-compatible to this version of VoiceXML; for more information, go to:
http://www.w3.org/TR/2002/WD-voicexml20-20020424/

The 6th release of Cisco IOS Software Release 12.4T, available Q1 2007, will introduce support for VoiceXML 2.1 based on a recent draft from the W3C dated June 13, 2005:
http://www.w3.org/TR/2005/CR-voicexml21-20050613/

Q. **Is the Cisco IOS VoiceXML Browser certified with the VoiceXML Forum?**

A. Yes, the Cisco IOS VoiceXML Browser is certified with the VoiceXML Forum:
http://www.voicexml.org/platform_certification/certified_platforms.html

Q. **What is new in Cisco IOS Software Release 12.4(11)T?**

A. Industry-leading standards compliance is new in this release; in addition, VoiceXML 2.0 is new, including the following new capabilities:

- Transfer enhancements include support for application-to-application information data passing, and blind and bridged
  transfer conformance.
- Added flexibility options for "exact" versus "approximate" phrase recognition are offered.
- Cisco IOS Software Release 12.4(11)T maintains the pre-standard implementation of VoiceXML available in earlier releases of Cisco IOS Software and is backward-compatible to these earlier Cisco IOS VoiceXML versions.

Q. **Which ASR and TTS engines are supported with the Cisco IOS VoiceXML Browser?**

A. The Cisco IOS VoiceXML Browser interfaces with ASR and TTS media servers from Nuance (http://www.nuance.com) and Scansoft. Note that Scansoft acquired Nuance in 2006 and is now known collectively as Nuance. Cisco IOS VoiceXML Browser has also been tested with the media server available from Loquendo.

The interface to the media servers uses openly specified Media Resource Control Protocol (MRCP) extensions of the IETF Real-Time Streaming Protocol (RFC 2326). Currently, the Cisco IOS VoiceXML interface is based on MRCPv.1. MRCPv.2 support is scheduled for Q1 CY2007: http://tools.ietf.org/html/draft-ietf-speechsc-mrcpv2-03

Q. **Does Cisco IOS VoiceXML include ASR and TTS licenses and server hardware?**

A. No. ASR and TTS software is available for purchase directly from Cisco partners such as Nuance for Linux, Solaris, or Windows servers.

Q. **What telephony interfaces are supported with the Cisco IOS VoiceXML Browser?**

A. All line-card interfaces and signaling protocols available on the Cisco IOS Voice Gateways are supported, including T1/E1 ISDN Primary Rate Interface (PRI), channel associated signaling (CAS), Signaling System 7 (SS7) ISDN User Part (ISUP), and others.

Q. **What IP interfaces are supported with the Cisco IOS VoiceXML Browser?**

A. After VoiceXML processing occurs, the gateway can initiate a Media Gateway Control Protocol (MGCP), Session Initiation Protocol (SIP), or H.323 call. Note that an MGCP controlled gateway without a dial peer cannot invoke a VoiceXML or a Tool Command Language (TCL) script that results in an outbound call. There is an MGCP script package, but it can perform only functions such as play prompts, and it is not implemented on the Cisco Unified CallManager.

Q. **Can the Cisco 2800 and 3800, Cisco 3700, and Cisco AS5000 products support voice gateway services and Cisco IOS VoiceXML Browser sessions concurrently?**

A. Yes, the ability to concurrently support both public-switched-telephone-network (PSTN) voice gateway and VoiceXML gateway services is an important benefit of the Cisco IOS VoiceXML Browser. Additional services such PSTN gateway, fax, security, and IP telephony will affect the maximum number of VoiceXML sessions supported on a platform-by-platform basis.

Q. **Which VoiceXML application servers interoperate with the Cisco IOS VoiceXML Browser?**

A. The Cisco IOS VoiceXML Browser supports interoperability with the Cisco Unified Customer Voice Portal (CVP). These products are regularly solution-tested to ensure trouble-free operation of self-service applications:
http://www.cisco.com/en/US/products/sw/custcosw/ps1006/index.html

Q. **Where can I get additional Cisco Unified CVP and Cisco IOS VoiceXML Browser compatibility information?**

A. You can find the recommended bill of materials for the major components of Cisco Unified CVP, including the Cisco IOS Voice Gateway, in the Cisco Unified CVP 3.1(0) Hardware and Software Specification (bill of materials):
http://www.cisco.com/univercd/cc/td/doc/product/icm/isn/cvp31/bom.pdf

Note: Cisco UCVP customers should consult with the Cisco Technical Assistance Center (TAC) prior to upgrading Cisco IOS Software to a version that is not explicitly recommended on the appropriate Cisco UCVP Hardware and Software Specification (bill of materials).

Q. **Is the Cisco IOS VXML Browser supported by the Cisco TAC?**

A. Yes, when purchased with the appropriate support contract(s), the Cisco IOS VoiceXML Browser is supported by the Cisco TAC.

Q. **Are custom, third-party, VoiceXML-based applications supported by the Cisco TAC?**

A. No. Questions or support concerns related to VoiceXML applications other than those related to the Cisco Unified CVP are not supported by the Cisco TAC. The Cisco TAC supports only problems related to the Cisco IOS VoiceXML Browser and Cisco Unified CVP.

Q. **How does a customer get support for custom VoiceXML-based applications?**

A. Customers with custom, third-party, VoiceXML-based applications should engage the Cisco Advance Services organization or the developers' services organizations. Developers' support information can be found at:
http://www.cisco.com/web/partners/pr46/tdp/index.html

Q. **What is the Developer Services Program?**

A. The Developer Services Program provides formalized services for Cisco Systems® interfaces to enable developers, customers, and partners to accelerate the delivery of compatible solutions. This fee-based subscription program provides a consistent level of services while using Cisco interfaces in development projects. The Developer Services engineers are an extension of the product technology engineering teams. They have direct access to the resources necessary to provide expert support in a timely manner.

For additional information, refer to Frequently asked Questions about the *Program and Support* under Q&A on the Developer Services Program Website:
http://www.cisco.com/go/developersupport/

Q. **What is the price of Cisco IOS VoiceXML Browser?**

A. Cisco IOS VoiceXML Browser services are priced on a per-session basis. There are two feature license part numbers for sessions on the Cisco 2800 and 3800 and Cisco 3700: FL-VXML-1= and FL-VXML-12=. The part numbers for the licenses can be combined to achieve the maximum concurrent sessions required.

The Cisco AS5340XM and AS5400XM provide special bundles when the chassis is deployed as a dedicated Cisco IOS VoiceXML Browser. In this configuration no time-division multiplexing (TDM) or Digital Signal Processing (DSP) resources are included in the bundle.

When the Cisco AS5350XM or AS5400XM is purchased as a bundle that includes TDM or Session Border Controller functionality, the ability to run VoiceXML, to a maximum of 240 sessions per chassis, is included in the bundle price.

Please check with your Cisco representative or partner for pricing.

Q. **Do Cisco VoiceXML functions require a special license or key code?**

A. The VoiceXML browser functions are inherently available within the Cisco IOS Voice image and above. There is no CD, authorization, or key code to activate Cisco IOS VoiceXML Browser sessions—the functions are simply enabled by configuration within the Cisco IOS command-line interface (CLI). However, as noted previously, a feature license, or licenses, must be purchased
in most cases.

Q. **Where can I find documentation relating to the Cisco IOS VoiceXML Browser?**

A. The following documents are available for customers and partners:

- Cisco VoiceXML Programmer's Guide for release 12.4(11)T:
  http://www.cisco.com/en/US/products/sw/iosswrel/ps1839/products_programming_usage_guide_book09186a00800d66bf.html

- Overview of Cisco IOS TCL IVR and VoiceXML Applications 12.4(11)T:
  http://www.cisco.com/en/US/products/sw/iosswrel/ps5207/products_administration_guide_book09186a008022a7e6.html

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