



# VXML Server Design Implications

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## VoiceXML Over HTTP

Communication between the VXML Server and Voice browser is based on request-response cycles using VoiceXML over HTTP. VoiceXML documents are linked together by using the Uniform Resource Identifiers (URI), which is a standardized technology to reference resources within a network. User input is carried out by web forms similar to HTML. Forms contain input fields that the user edited and sent back to a server.

Resources for the Voice browser are located on the VXML Server. These resources are VoiceXML files, digital audio, instructions for speech recognition (Grammars), and scripts. Every communication process between the VoiceXML browser and Voice application has to be initiated by the VoiceXML browser as a request to the VXML Server. For this purpose, VoiceXML files contain grammars that specify expected words and phrases. A link contains the URL that refers to the Voice application. The browser connects to that URL as soon as it recovers a match between spoken input and one of the grammars.



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**Note** From Unified CVP Release 9.0(1) and later release the CVP installer installs CVP Call Server, CVP VXML Server and Media Server together. On installing CVP installer, you can configure only Call Server, VXML Server, Media Server or any other combination as required.

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When determining the VXML Server performance, consider the following key aspects:

- QoS and network bandwidth between the Web application server and the voice gateway  
For details, see [Network Infrastructure Considerations](#).
- Performance on the VXML Server  
For details, see the *Hardware and System Software Specification for Cisco Unified Customer Voice Portal* at [http://www.cisco.com/en/US/products/sw/custcosw/ps1006/prod\\_technical\\_reference\\_list.html](http://www.cisco.com/en/US/products/sw/custcosw/ps1006/prod_technical_reference_list.html).
- Use of prerecorded audio versus Text-to-Speech (TTS)

Voice user-interface applications tend to use prerecorded audio files wherever possible. Recorded audio sounds better than TTS. Prerecorded audio file quality must be designed so that it does not impact download time and browser interpretation. Make recordings in 8-bit mu-law 8 kHz format.

- Audio file caching

Ensure that the voice gateway is set to cache audio content to prevent delays from downloading files from the media source. For details about prompt management on supported gateways, see [Cisco IOS Caching and Streaming](#).

- Use of Grammars

A voice application, such as any user-centric application, is prone to certain problems that might be discovered only through formal usability testing or observation of the application in use. Poor speech recognition accuracy is one type of problem common to voice applications, and a problem most often caused by poor grammar implementation. When users mispronounce words or say things that the grammar designer does not expect, the recognizer cannot match their input against the grammar. Poorly designed grammars containing many difficult-to-distinguish entries also result in many incorrectly recognized inputs, leading to decreased performance on the VXML Server. Grammar tuning is the process of improving recognition accuracy by modifying a grammar based on an analysis of its performance.

## Multi-Language Support

The Cisco IOS Voice Browser or the Media Resource Control Protocol (MRCP) specification does not impose restrictions on support for multiple languages. However, there may be restrictions on the automatic speech recognition (ASR) or TTS Server. Check with your preferred ASR or TTS vendor about their support for your languages before preparing a multilingual application.

You can dynamically change the ASR server value by using the **cisco property com.cisco.asr-server** command in the VoiceVXML script. This property overrides any previous value set by the VoiceXML script.

## Cisco Unified Call Studio Installation

Cisco Unified Call Studio is an Integrated Development Environment (IDE), which needs to be installed in a setup that is conducive for development, such as workstations that are used for other software development or business analysis purposes. Unified Call Studio is Eclipse-based, due to which development activities such as writing Java programs or building object models can be migrated to this tool so that developers and analysts have a common utility for their development needs.

For details on how to install Cisco Unified Call Studio, see *Installation and Upgrade Guide for Cisco Unified Customer Voice Portal* at <http://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/tsd-products-support-series-home.html>.



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**Note**

Unified Call Studio is supported only on Windows client software. Cisco does not support collocating the Cisco Unified Call Studio with the VXML Server.

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