



APPENDIX A

Cisco VoiceXML DTD

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Cisco VoiceXML DTD

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<!--  
VoiceXML 2.1 DTD (20060322)  
  
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of the DTD for any purpose. It is provided "as is" without expressed  
or implied warranty.  
-->  
  
<!ENTITY % audio "#PCDATA | audio | enumerate | value">  
<!ENTITY % bargeintype "( speech | hotword )">  
<!ENTITY % boolean "(true|false)">  
<!ENTITY % content.type "CDATA">  
<!ENTITY % duration "CDATA">  
<!ENTITY % event.handler "catch | help | noinput | nomatch | error">  
<!ENTITY % event.name "NMTOKEN">  
<!ENTITY % event.names "NMTOKENS">  
<!ENTITY % executable.content "%audio; | assign | clear | data | disconnect |  
    exit | foreach | goto | if | log | prompt |  
    reprompt | return | script | submit | throw | var | cisco-data | cisco-typeaheadflush  
    | cisco-debug ">  
<!ENTITY % expression "CDATA">  
<!ENTITY % restrictedvariable.name "CDATA">  
<!ENTITY % variable.name "CDATA">  
<!ENTITY % restrictedvariable.names "CDATA">  
<!ENTITY % variable.names "CDATA">  
<!ENTITY % integer "CDATA">  
<!ENTITY % item.attrs "name      %restrictedvariable.name; #IMPLIED  
    cond          %expression;    #IMPLIED  
    expr          %expression;    #IMPLIED ">  
<!ENTITY % uri "CDATA">  
<!ENTITY % cache.attrs "fetchhint (prefetch|safe) #IMPLIED  
    fetchtimeout  %duration;    #IMPLIED  
    maxage       %integer;      #IMPLIED  
    maxstale     %integer;      #IMPLIED">  
<!ENTITY % next.attrs "next      %uri;          #IMPLIED
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    expr          %expression;    #IMPLIED ">
<!ENTITY % submit.attrs "method      (get|post)  'get'
    enctype       %content.type;    'application/x-www-form-urlencoded'
    namelist      %variable.names;   #IMPLIED">
<!ENTITY % throw.attrs "event        %event.name;    #IMPLIED
    eventexpr     %expression;       #IMPLIED
    message       CDATA              #IMPLIED
    messageexpr   %expression;       #IMPLIED">
<!ENTITY % variable "block | data | field | var">
<!--===== Root =====>
<!ELEMENT vxml (%event.handler; | data | form | link | menu | meta | metadata |
    property | script | var | cisco-data)+>
<!ATTLIST vxml
    application %uri; #IMPLIED
    xml:base %uri; #IMPLIED
    xml:lang NMTOKEN #IMPLIED
    xmlns:CDATA #FIXED 'http://www.w3.org/2001/vxml'
    xmlns:xsi CDATA #IMPLIED
    xsi:schemaLocation CDATA #IMPLIED
    version CDATA #REQUIRED
>
<!ELEMENT meta EMPTY>
<!ATTLIST meta
    name NMTOKEN #IMPLIED
    content CDATA #REQUIRED
    http-equiv NMTOKEN #IMPLIED
>

<!ELEMENT metadata ANY>

<!--===== Prompts =====>
<!-- definitions adapted from SSML 1.0 DTD -->
<!ENTITY % structure "p | s">
<!ENTITY % sentence-elements "break | emphasis | mark | phoneme | prosody |
    say-as | voice | sub">
<!-- addition of enumerate and value elements as 'allowed-within-sentence'
    audio elements -->
<!ENTITY % allowed-within-sentence " %audio; | %sentence-elements; ">

<!-- Prompt is modelled on SSML 1.0 DTD speak element:
- addition of 'bargain', 'bargaintype', 'cond', 'count' and 'timeout' attributes
- removal of xmlns, xmlns:xsi, and xsi:schemaLocation attributes
- version attribute fixed as "1.0"
-->
<!ELEMENT prompt (%allowed-within-sentence; | foreach | %structure; | lexicon
    | metadata | meta )*>
<!ATTLIST prompt
    bargain %boolean; #IMPLIED
    bargaintype %bargaintype; #IMPLIED
    cond %expression; #IMPLIED
    count %integer; #IMPLIED
    xml:lang NMTOKEN #IMPLIED
    cisco-vcrprompt %boolean; #IMPLIED
    cisco-rate %integer; #IMPLIED
    cisco-typeaheadflush %boolean; false

    timeout %duration; #IMPLIED
    xml:base %uri; #IMPLIED
    version CDATA #FIXED "1.0"
>
<!ELEMENT enumerate (%allowed-within-sentence; | %structure;)*>
<!ELEMENT reprompt EMPTY>

<!--===== Dialogs =====>

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<!ENTITY % input "grammar">
<!ENTITY % scope "(document | dialog)">
<!ELEMENT form (%input; | %event.handler; | filled | initial | object | link |
    property | record | script | subdialog | transfer | %variable |
    cisco-vcrcontrol | cisco-data;)*>
<!ATTLIST form
    id ID #IMPLIED
    scope %scope; "dialog"
>
<!ENTITY % accept.attrs "accept (exact | approximate) 'exact'">
<!ELEMENT menu (%audio; | choice | %event.handler; | prompt | property |
    cisco-vcrcontrol)*>
<!ATTLIST menu
    id ID #IMPLIED
    scope %scope; "dialog"
    %accept.attrs;
    dtmf %boolean; "false"
>
<!ELEMENT choice ( #PCDATA | %input; )*>
<!ATTLIST choice
    %cache.attrs;
    accept (exact | approximate) #IMPLIED
    dtmf CDATA #IMPLIED
    %throw.attrs;
    fetchaudio %uri; #IMPLIED
    %next.attrs;
>
<!--===== Audio Output =====>
<!-- definitions adapted from SSML 1.0 DTD -->
<!ELEMENT p (%allowed-within-sentence; | s)*>
<!ATTLIST p
    xml:lang NMTOKEN #IMPLIED
>
<!ELEMENT s (%allowed-within-sentence;)*>
<!ATTLIST s
    xml:lang NMTOKEN #IMPLIED
>
<!ELEMENT voice (%allowed-within-sentence; | %structure;)*>
<!ATTLIST voice
    xml:lang NMTOKEN #IMPLIED
    gender (male | female | neutral) #IMPLIED
    age %integer; #IMPLIED
    variant %integer; #IMPLIED
    name CDATA #IMPLIED
>
<!ELEMENT prosody (%allowed-within-sentence; | %structure;)*>
<!ATTLIST prosody
    pitch CDATA #IMPLIED
    contour CDATA #IMPLIED
    range CDATA #IMPLIED
    rate CDATA #IMPLIED
    duration %duration; #IMPLIED
    volume CDATA #IMPLIED
>
<!-- Changes to SSML 1.0 DTD audio element:
- src not obligatory, addition of 'expr' and caching attributes
-->
<!ELEMENT audio (%allowed-within-sentence; | %structure; | desc)*>
<!ATTLIST audio
    src %uri; #IMPLIED
    expr %expression; #IMPLIED
    %cache.attrs;
>
<!ELEMENT desc (#PCDATA)>

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<!ATTLIST desc
    xml:lang NMTOKEN #IMPLIED
>
<!ELEMENT emphasis (%allowed-within-sentence;)*>
<!ATTLIST emphasis
    level (strong | moderate | none | reduced) "moderate"
>
<!-- Changes to SSML 1.0 DTD say-as element:
- allows value element as child
-->
<!ELEMENT say-as (#PCDATA | value )*>
<!ATTLIST say-as
    interpret-as NMTOKEN #REQUIRED
    format NMTOKEN #IMPLIED
    detail NMTOKEN #IMPLIED
>
<!ELEMENT sub (#PCDATA)>
<!ATTLIST sub
    alias CDATA #REQUIRED
>
<!ELEMENT phoneme (#PCDATA)>
<!ATTLIST phoneme
    ph CDATA #REQUIRED
    alphabet CDATA #IMPLIED
>
<!ELEMENT break EMPTY>
<!ATTLIST break
    time CDATA #IMPLIED
    strength (none | x-weak | weak | medium | strong | x-strong) "medium"
>
<!ELEMENT mark EMPTY>
<!ATTLIST mark
    name ID #IMPLIED
    nameexpr %expression; #IMPLIED
>

<!-- "cisco-vcrcontrol" can be in <form>, <menu> and form item (including <block>).-->
<!ELEMENT cisco-vcrcontrol EMPTY>
<!ATTLIST cisco-vcrcontrol
    dtmf CDATA #IMPLIED
    action (rate|volume) #REQUIRED
    scope %scope; #IMPLIED
    step %integer; #REQUIRED>

<!--===== Fields =====>
<!ELEMENT field (%audio; | %event.handler; | filled | %input; | link | option |
    prompt | property | cisco-vcrcontrol)*>
<!ATTLIST field
    %item.attrs;
    type CDATA #IMPLIED
    slot NMTOKEN #IMPLIED
    modal %boolean; "false"
>
<!ELEMENT option (#PCDATA)>
<!ATTLIST option
    %accept.attrs;
    dtmf CDATA #IMPLIED
    value CDATA #IMPLIED
>
<!ELEMENT var EMPTY>
<!ATTLIST var
    name %restrictedvariable.name; #REQUIRED
    expr %expression; #IMPLIED
>

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<!ELEMENT initial (%audio; | %event.handler; | link | prompt | property |
cisco-vcrcontrol)*>
<!ATTLIST initial
    %item.attrs;
>
<!ELEMENT block (%executable.content; | cisco-vcrcontrol)*>
<!ATTLIST block
    %item.attrs;
>
<!ELEMENT assign EMPTY>
<!ATTLIST assign
    name %variable.name; #REQUIRED
    expr %expression; #REQUIRED
>
<!ELEMENT clear EMPTY>
<!ATTLIST clear
    namelist %variable.names; #IMPLIED
>
<!ELEMENT value EMPTY>
<!ATTLIST value
    expr %expression; #REQUIRED
>
<!--===== Events =====>
<!ENTITY % event.handler.attrs "count      %integer;    #IMPLIED
    cond      %expression;    #IMPLIED">
<!ELEMENT catch (%executable.content;)*>
<!ATTLIST catch
    event %event.names; #IMPLIED
    %event.handler.attrs;
>
<!ELEMENT error (%executable.content;)*>
<!ATTLIST error
    %event.handler.attrs;
>
<!ELEMENT help (%executable.content;)*>
<!ATTLIST help
    %event.handler.attrs;
>
<!ELEMENT link (%input;)*>
<!ATTLIST link
    %cache.attrs;
    %next.attrs;
    fetchaudio %uri; #IMPLIED
    dtmf CDATA #IMPLIED
    %throw.attrs;
>
<!ELEMENT noinput (%executable.content;)*>
<!ATTLIST noinput
    %event.handler.attrs;
>
<!ELEMENT nomatch (%executable.content;)*>
<!ATTLIST nomatch
    %event.handler.attrs;
>
<!ELEMENT throw EMPTY>
<!ATTLIST throw
    %throw.attrs;
>
<!--===== Grammar Input =====>
<!-- definitions adapted from SRGS 1.0 DTD -->
<!ENTITY % rule-expansion "#PCDATA | token | ruleref
    | item | one-of | tag ">
<!ELEMENT ruleref EMPTY>
<!ATTLIST ruleref

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    uri %uri; #IMPLIED
    type CDATA #IMPLIED
    special (NULL | VOID | GARBAGE) #IMPLIED
  >
<!ELEMENT token (#PCDATA)>
<!ATTLIST token
  xml:lang NMTOKEN #IMPLIED
>
<!ELEMENT tag (#PCDATA)>
<!ELEMENT one-of (item)+>
<!ATTLIST one-of
  xml:lang NMTOKEN #IMPLIED
>
<!ELEMENT item (%rule-expansion;)*>
<!ATTLIST item
  repeat NMTOKEN #IMPLIED
  repeat-prob NMTOKEN #IMPLIED
  weight NMTOKEN #IMPLIED
  xml:lang NMTOKEN #IMPLIED
>
<!ELEMENT rule (%rule-expansion; | example)*>
<!ATTLIST rule
  id ID #REQUIRED
  scope (private | public) "private"
>
<!ELEMENT example (#PCDATA)>
<!ELEMENT lexicon EMPTY>
<!ATTLIST lexicon
  uri %uri; #REQUIRED
  type CDATA #IMPLIED
>
<!-- Changes to SRGS 1.0 DTD grammar element:
- mixed, unordered content model
- addition of 'scope', 'src', 'type', 'weight' and caching attributes
- 'version' attribute is optional
- removal of xmlns, xmlns:xsi, and xsi:schemaLocation attributes
-->
<!ELEMENT grammar (#PCDATA | meta | metadata | lexicon | rule | tag)*>
<!ATTLIST grammar
  scope %scope; #IMPLIED
  src %uri; #IMPLIED
  srcexpr %expression; #IMPLIED
  type CDATA #IMPLIED
  weight CDATA #IMPLIED
  %cache.attrs;
  tag-format %uri; #IMPLIED
  xml:base %uri; #IMPLIED
  version NMTOKEN #IMPLIED
  xml:lang NMTOKEN #IMPLIED
  root IDREF #IMPLIED
  mode (voice | dtmf) "voice"
>
<!--===== Audio Input =====>
<!ELEMENT record (%audio; | %event.handler; | filled | %input; | prompt |
  Property | cisco-vcrcontrol)*>
<!ATTLIST record
  %item.attrs;
  type CDATA #IMPLIED
  beep %boolean; "false"
  maxtime %duration; #IMPLIED
  modal %boolean; "true"
  finalsilence %duration; #IMPLIED
  dtmfterm %boolean; "true"
  cisco-recordbeep %boolean; "false"

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        cisco-recordbeepinterval %duration; #IMPLIED
        cisco-dest %uri; #IMPLIED
        cisco-destexpr %expression; #IMPLIED

    >
    <!--===== Call Control =====>
    <!ELEMENT disconnect EMPTY>
    <!ATTLIST disconnect
        namelist %variable.names; #IMPLIED
        cisco-gtd expression; #IMPLIED
        cisco-disc_cause expression; #IMPLIED

    >

    <!ELEMENT transfer (%audio; | %event.handler; | filled | %input; | prompt |
        Property | cisco-vcrcontrol)*>
    <!ATTLIST transfer
        %item.attrs;
        dest %uri; #IMPLIED
        destexpr %expression; #IMPLIED
        bridge %boolean; #IMPLIED
        type NMTOKEN #IMPLIED
        connecttimeout %duration; #IMPLIED
        maxtime %duration; #IMPLIED
        transferaudio %uri; #IMPLIED
        aai CDATA #IMPLIED
        aaiepr %expression; #IMPLIED
        cisco-longpound %boolean; 'true'
        cisco-newguid %expression; #IMPLIED
        cisco-mailtoaddress %expression; #IMPLIED
        cisco-username %expression; #IMPLIED
        cisco-destplan %integer; #IMPLIED
        cisco-desttype %integer; #IMPLIED
        cisco-ani %uri; #IMPLIED
        cisco-aniexpr %expression; #IMPLIED
        cisco-anitype %integer; #IMPLIED
        cisco-aniplan %integer; #IMPLIED
        cisco-anipi %integer; #IMPLIED
        cisco-anisi %integer; #IMPLIED
        cisco-rdn %uri; #IMPLIED
        cisco-rdnexpr %expression; #IMPLIED
        cisco-rdntype %integer; #IMPLIED
        cisco-rdnplan %integer; #IMPLIED
        cisco-rdnpi %integer; #IMPLIED
        cisco-rdnsi %integer; #IMPLIED
        cisco-redirectreason %integer; #IMPLIED
        cisco-handoffexpr %expression; #IMPLIED
        cisco-gtd %expression; #IMPLIED
        cisco-carrierid-source %expression; #IMPLIED
        cisco-carrierid-target %expression; #IMPLIED

    >
    <!--===== Control Flow =====>
    <!ENTITY % if.attrs "cond %expression; #REQUIRED">
    <!ELEMENT if (%executable.content; | elseif | else)*>
    <!ATTLIST if
        %if.attrs;

    >
    <!ELEMENT elseif EMPTY>
    <!ATTLIST elseif
        %if.attrs;

    >
    <!ELEMENT else EMPTY>
    <!ELEMENT exit EMPTY>

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<!ATTLIST exit
    expr %expression; #IMPLIED
    namelist %variable.names; #IMPLIED
>
<!ELEMENT filled (%executable.content;)*>
<!ATTLIST filled
    mode (any | all) #IMPLIED
    namelist %restrictedvariable.names; #IMPLIED
>

<!-- executable content + contents of prompt -->
<!ELEMENT foreach (%executable.content; | %sentence-elements; |
    %structure; | cisco-vcrcontrol )*
>
<!ATTLIST foreach
    item %restrictedvariable.name; #REQUIRED
    array CDATA #REQUIRED
>

<!ELEMENT goto EMPTY>
<!ATTLIST goto
    %cache.attrs;
    %next.attrs;
    fetchaudio %uri; #IMPLIED
    expritem %expression; #IMPLIED
    nextitem %restrictedvariable.name; #IMPLIED
>
<!ELEMENT param EMPTY>
<!ATTLIST param
    name NMTOKEN #REQUIRED
    expr %expression; #IMPLIED
    value CDATA #IMPLIED
    valuetype (data | ref) "data"
    type CDATA #IMPLIED
>
<!ELEMENT return EMPTY>
<!ATTLIST return
    namelist %variable.names; #IMPLIED
    %throw.attrs;
>
<!ELEMENT subdialog (%audio; | %event.handler; | filled | param | prompt |
    Property | cisco-vcrcontrol)*>
<!ATTLIST subdialog
    %item.attrs;
    src %uri; #IMPLIED
    srcexpr %expression; #IMPLIED
    %cache.attrs;
    fetchaudio %uri; #IMPLIED
    %submit.attrs;
>
<!ELEMENT submit EMPTY>
<!ATTLIST submit
    %cache.attrs;
    %next.attrs;
    fetchaudio %uri; #IMPLIED
    %submit.attrs;
>
<!--===== Miscellaneous =====>
<!ELEMENT data EMPTY>
<!ATTLIST data
    name %restrictedvariable.name; #IMPLIED
    src %uri; #IMPLIED
    srcexpr %expression; #IMPLIED
    fetchaudio %uri; #IMPLIED

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        %submit.attrs;
        %cache.attrs;
    >

    <!--ELEMENT log (#PCDATA | value)*-->
    <!--ATTLIST log
        label CDATA #IMPLIED
        expr %expression; #IMPLIED
    -->
    <!--ELEMENT object (%audio; | %event.handler; | filled | param | prompt |
        Property | cisco-vcrcontrol)*-->
    <!--ATTLIST object
        %item.attrs;
        %cache.attrs;
        classid %uri; #IMPLIED
        codebase %uri; #IMPLIED
        data %uri; #IMPLIED
        type CDATA #IMPLIED
        codetype CDATA #IMPLIED
        archive %uri; #IMPLIED
    -->
    <!--ELEMENT property EMPTY-->
    <!--ATTLIST property
        name NMTOKEN #REQUIRED
        value CDATA #REQUIRED
    -->
    <!--ELEMENT script (#PCDATA)-->
    <!--ATTLIST script
        src %uri; #IMPLIED
        srcexpr %expression; #IMPLIED
        charset CDATA #IMPLIED
        %cache.attrs;
    -->

    <!--ELEMENT cisco-data EMPTY-->
    <!--ATTRLIST cisco-data
        src %uri #IMPLIED
        name %restrictedvariable.name; #REQUIRED
        expr %expression; #IMPLIED
        srcexpr %expression; #IMPLIED
        fetchaudio %uri; #IMPLIED
        %cache.attrs;
        %submit.attrs; >

    < !ELEMENT cisco-debug EMPTY >
    < !ATTLIST cisco-debug
        enabled %boolean; #REQUIRED >

    < !ELEMENT cisco-typeaheadflush EMPTY >

```

