



ŽIVLJENJE NISO LE BESEDE

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Operation of 090 premium services via the Voice portal

(technical specifications)

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Introduction

Mobitel enables a **VOICE PORTAL** solution for all users who lease one of Mobitel's 090 premium number. This solution is intended for delivery of automated premium voice services and answering machines with the use of computer applications. It enables simultaneous calls on one 090 number, without the provider having to pre-lease a certain number of lines for receiving simultaneous calls. For this reason it is suitable for services, which have a high user response rate generated by service advertisements (for example TV or radio advertising).

The Voice portal is an automated alternative for a call centre (sink point). (The call centre is intended for providers who accept live calls from users via SIM cards in mobile phones.) The Voice portal is intended for advanced users, which have an internet server at their disposal and have sufficient knowledge to develop computer applications for automated replay of voice content.

Mobitel offers simple charging for services conducted via the Voice XML protocol. The system for charging premium services via the Voice portal is the same as for 090 numbers, which are delivered via the Call centre. A premium running time is charged by minutes according to the 090 price list.

The Voice portal enables recording of speech, automatic speech recognition – ASR (Slovenian language) and automatic speech synthesis TTS (currently only for English language).

In addition to premium running time charging by minutes, the Voice portal also enables charging of individual "premium events".

This document defines the procedure of charging premium running time by minutes and the form and method of communication in the chain of user-Mobitel-provider.

For eventual technical questions you can contact our advisors at: help@m-vrata.com.

Operation description

All user requests for payable premium voice services are made via a call to a 090 number of a 090-voice portal server. The server maps the 090 telephone number to a service provider's URL address of the service or content. See chapter "Description of telephone number to URL address mapping". Users' numbers must not be hidden, if they wish to use the service.

Charging and establishment of user's authorization for service use is carried out by the exchange. If the user is authorized to use the service, the 090 voice portal server retrieves the content from the service provider's URL address. Then it loads the VXML document over the HTTP protocol and the content of the VXML document is replayed to the user.

The call can be disconnected by the user or by the application. 090 calls must not be longer than 30 minutes. After 30 minutes the call is automatically disconnected by the Voice portal.

Course of a call

A user calls a 090 number. The exchange takes care of the charging of premium call time by minutes. At the same time it checks whether the user is authorized to use the service. If the user is authorized, the 090 number is mapped to a specified 031XXXXXX number, which is defined in the exchange. The request for connection establishment is forwarded to the 090 voice portal, which performs the mapping of the 031XXXXXX number into a service provider's URL. The application on the service provider's side receives a connection request. User starts being charged when the application on the provider's side establishes the connection.

In the event when a user calls a 090 number which operates via the Voice portal, with a hidden number, an answering machine replays the following message: "The number is not available. Please, call later."

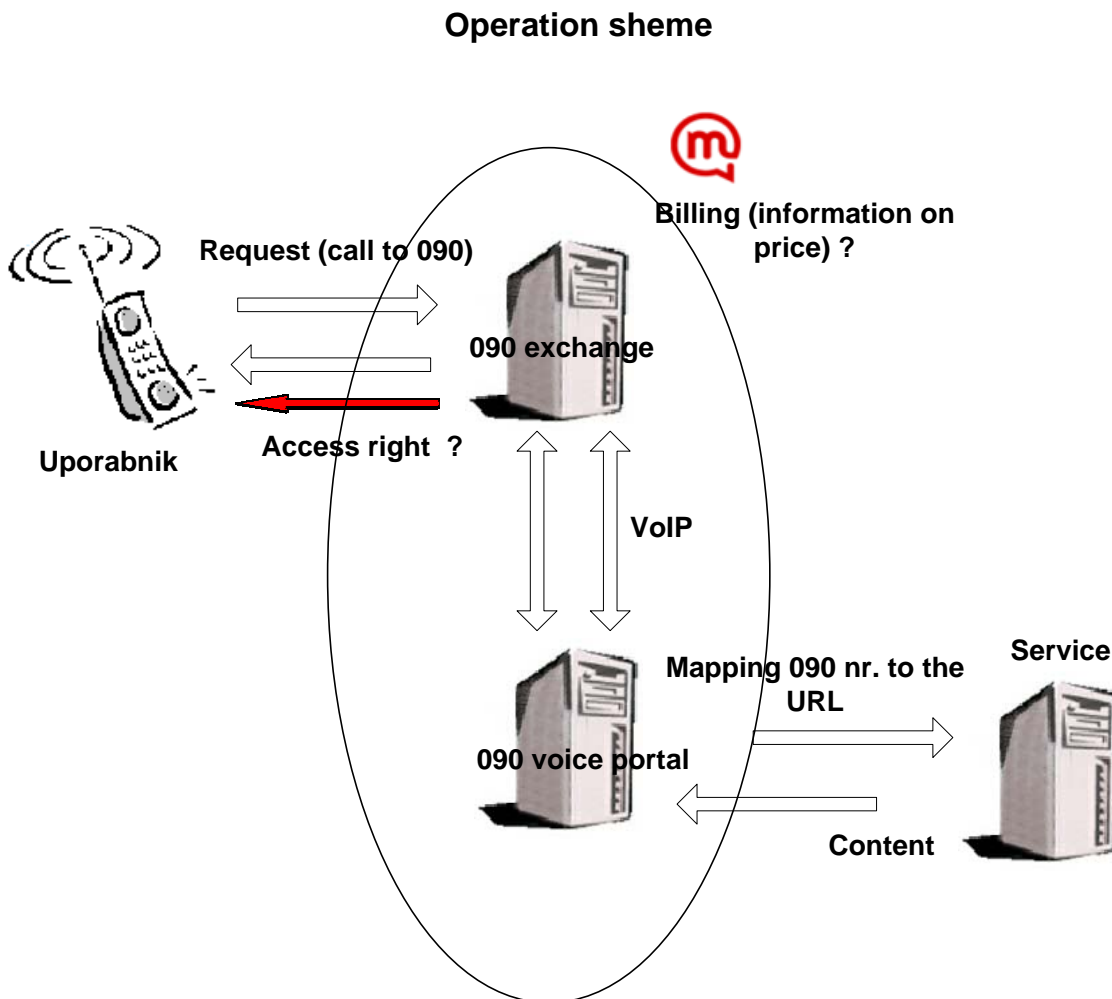


Figure 1: Operation scheme

The technology used

Mobitel is using a voice server based on the Voice XML 2.0 standard. You can read more about it on <http://www.w3.org/Voice>. Current usage possibilities of Mobitel's Voice portal are the following:

- **recognition of DTMF commands** (selection with telephone keys),
- **speech recognition or voice selection** (The system enables recognition of clearly and loudly spoken words in Slovenian. A user can select different content with certain pre-specified words instead of telephone keys. The set of recognizable words (grammar) should include as different words as possible. Similar words increase the possibility of false recognition.)

(example: http://www.m-vrata.com/datoteke/Datoteke/voice_asr.zip)

- **replay of sound files,**
- **user's voice recording.**

Supported format of sound recordings is WAV – 8 kHz, 8/16 bit, mono, a-law. The maximum size of the WAV file is limited to 4 MB, which is approximately 4 minutes of speech. If the sound files are bigger, they must be divided into smaller files which are then replayed in sequence.

The service provider must ensure:

- a server with a static IP address and a permanent internet connection,
- a Voice XML application, created according to the Voice XML 2.0 standard, incorporating the above parameters. We recommend that you limit the size of the VXML file to 200 lines.

The provider must forward the appropriate URL address of its Voice XML application to Mobitel. The connection is performed via a standard http connection, using port 80.

The service provider must enable access to the application on its server exclusively to Mobitel's Voice portal 090 server. Access is limited exclusively to the IP number of the 090 voice server.

Description of telephone number to URL address mapping

A user calls a 090 number. This 090 number is mapped to a certain number with a 031 prefix. A direct call to this number with a 031 prefix is not possible. 090 Voice server transforms the 031 number into the service provider's URL address. The application on the provider's side receives the following information:

- 090 voice server IP address.
- MSISDN or the callers telephone number (it is forwarded to the service provider's server in the form of a server variable HTTP_ANUMBER).
- The service provider's 031 number (HTTP_BNUMBER).

All user requests are logged on the 090 voice server.

Example: the entry number to the portal is the premium number 090140008; first it is mapped to a number such as 031914015. From here on the system only uses the number 031914015. The 090 voice server connects the number 031914015 with a destination URL address <http://podjetje.si/vsebina1/dokument1.vxml> of the service provider, where the provider's service application resides.

Destination URL and the number 031914015 are invisible to the user.

Service or content providers must always be aware of the telephone number transformation as they can monitor their traffic via Mobitel's web service Monitor for this number.

Charging model

The user is charged by a premium running time in minutes, where the duration of an established connection in seconds is taken into account. The charging of the premium running time is performed by Mobitel. The revenue resulting from the premium running time of the provider's service in seconds is distributed between the contracting parties, as described in the Cooperation at implementation of voice content via Mobitel's 090 premium telephone numbers contract. One 090 number can use only one price.

Along with the premium running time in minutes, the charging of events can also be performed, via the M-vrata server. The events charging model is described in a separate document for events charging via M-vrata.

An example of a simple VOICE XML application:

The following files are an example of a simple voice application, written in the VoiceXML language. The application starts with a jump to the welcome.vxml page, which triggers the replay of a greeting sound file welcome.wav and a sound file with a description of possible choices choice.wav. The choice.wav sound file tells us to press 1, if we want to listen to the first sound recording or press 2 for the second recording. In case of an error, the error.vxml file is executed. This triggers the replay of the error.wav sound file, which informs us that an error occurred.

```
<?xml version="1.0" encoding="UTF-8"?>
<vxml version="2.0" xmlns="http://www.w3.org/2001/vxml"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.w3.org/2001/vxml http://www.w3.org/TR/voicexml20/vxml.xsd">
  <form id="mainMenu">
    <field name="selection">
      <!-- Welcome... -->
      <audio src="welcome.wav" maxage="0" fetchhint="prefetch"> </audio>
        <audio src="choice.wav" maxage="0" fetchhint="prefetch"> </audio>
      <grammar mode="dtmf" root="mainMenuRule">
        <rule id="mainMenuRule" scope="public">
          <one-of>
            <item>0</item>
            <item>1</item>
            <item>2</item>
          </one-of>
        </rule>
      </grammar>
      <filled>
        <if cond="selection == '1'">
          <goto next="Documents/document1.vxml"/>
        <elseif cond="selection == '2'">
          <goto next="Documents/document2.vxml"/>
        </if>
        <clear namelist="selection"/>
        <goto nextitem="selection"/>
      </filled>
    </field>
  </form>
</vxml>
```

Listing 1: welcome.vxml file

```
<?xml version="1.0" encoding="UTF-8"?>
<vxml version="2.0" xmlns="http://www.w3.org/2001/vxml"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.w3.org/2001/vxml http://www.w3.org/TR/voicexml20/vxml.xsd">

  <form>
    <block>
      <audio src="melody1.wav" maxage="0" fetchhint="prefetch"> </audio>
    </block>
  </form>
</vxml>
```

Listing 2: Document1.vxml

```
<?xml version="1.0" encoding="UTF-8"?>
<vxml version="2.0" xmlns="http://www.w3.org/2001/vxml"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.w3.org/2001/vxml http://www.w3.org/TR/voicexml20/vxml.xsd">

  <form>
    <block>
      <audio src="melody2.wav" maxage="0" fetchhint="prefetch"> </audio>
    </block>
  </form>
</vxml>
```

Listing 3: Document2.vxml

```
<?xml version="1.0" encoding="UTF-8"?>
<vxml version="2.0" xmlns="http://www.w3.org/2001/vxml"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.w3.org/2001/vxml http://www.w3.org/TR/voicexml20/vxml.xsd">

  <form>
    <block>
      <audio src="error.wav" maxage="0" fetchhint="prefetch"> </audio>
    </block>
  </form>

</vxml>
```

Listing 4: error.vxml

User telephone number forwarding

MSISDN or the user telephone number is forwarded to the provider's application in an international format (38641XXXXXX). The telephone number is saved in an http variable HTTP_ANUMBER.

Error log forwarding via e-mail

During testing the developers can receive error notifications, which facilitate application code debugging. We recommend that during testing the application begins with the following lines of code. The developer enters an e-mail address where they wish to receive error messages in the second line.

```
<?xml version="1.0" encoding="UTF-8"?>
<vxml version="2.0" xmlns="http://www.w3.org/2001/vxml"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.w3.org/2001/vxml http://www.w3.org/TR/voicexml20/vxml.xsd">

<meta name="maintainer" content="joe.developer@foo.org"/>
<form>
  <block>
    <goto next="index.vxml" />
  </block>
</form>
</vxml>
```

Listing 6: error log forwarding via e-mail

If anything is wrong with the voice application or the provider's content (wrong format of provider's files, corrupt files, etc.), the call is disconnected. If there is an error in the first file, the connection is established and is disconnected immediately without an answering machine. When there is an error in one of the following files, the system works normally until it comes to the erroneous file where it disconnects without explanation.

Forbidden characters in an XML document

Some characters have special meaning in XML documents and are therefore not allowed. The following table contains the special characters in XML documents. The first column contains the character's graphic symbol, the second column contains a replacement for that character and the third column contains a character description.

Character	Replacement	Description
<	<	Less than sign
>	>	Greater than sign
&	&	Ampersand
"	"	Double quote sign
'	'	Apostrophe

Table 2: Forbidden characters in an XML document