Nuance’s Vocalizer Expressive total speech output solution generates high quality speech through a seamless blending of dynamic text-to-speech, pre-recorded audio and optimized tuned text to speech. The new Vocalizer Expressive engine has been optimized for reading long text in a much more natural sounding way. New signal processing algorithms improve overall smoothness of the voice output and advanced syntactical analysis gives the spoken text a natural prosody, providing a unique user experience.

Applications
Nuance TTS technology has been deployed successfully in numerous demanding applications ranging from navigation and automotive UI systems and consumer electronics to assistive technologies and industrial applications.

Automotive
route guidance
turn-by-turn directions
infotainment systems

Consumer electronics
cell phones
e-book readers
toys and game characters
electronic dictionaries

Accessibility products
for the blind and disabled
screen readers for PCs and mobile phones
daisy book readers
talking kiosks and ATMs

Industrial
warehousing stock picking
transportation

Nuance’s Vocalizer Expressive transforms the text-to-speech experience with enhanced expressivity! Advanced technology features improved multilingual support and optimized read-out of long text to enable the highest quality speech output for a wide range of applications and markets.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhanced expressivity</td>
<td>Improved expressive speech gives the voice personality for the most natural and engaging user experience possible.</td>
</tr>
<tr>
<td>Improved multi-lingual support</td>
<td>More accurate language identification and high-quality acoustic extensions provide unparalleled foreign language readout</td>
</tr>
<tr>
<td>Naturalness</td>
<td>Natural sounding human-like speech output guarantees an exceptional end user listening experience</td>
</tr>
<tr>
<td>Built-in domain intelligence</td>
<td>Optimization settings provide extra control options for special use cases such as SMS reading</td>
</tr>
<tr>
<td>Flexible speech generation</td>
<td>Volume and speaking rate can be changed at run time for more dynamic and lively effects</td>
</tr>
<tr>
<td>Direct phonetic input</td>
<td>Allows for optimal and seamless read out of off-line phonetic databases such as navigation map data</td>
</tr>
<tr>
<td>User text rules</td>
<td>Customized read out of application specific abbreviations and text pattern is possible using a user text processing rule set</td>
</tr>
<tr>
<td>User dictionaries</td>
<td>Application specific lexica can be phonetically optimized for accurate readout of exceptional pronunciations</td>
</tr>
<tr>
<td>Improved prompt tuning</td>
<td>With off line tuning options any prompt set can be further optimized and customized for maximum flexibility</td>
</tr>
<tr>
<td>Seamless prompt insertion</td>
<td>Recorded audio prompts or tuned prompts can be blended with dynamic text to speech seamlessly by active prompt matching</td>
</tr>
<tr>
<td>Vocalizer Expressive studio tool</td>
<td>A comprehensive user-friendly tools suite to prototype and optimize speech output applications by easily creating optimization data such as user text rules, user dictionaries and prompt databases</td>
</tr>
<tr>
<td>Universality</td>
<td>A truly universal voice portfolio offers 42 languages and 71 voices to facilitate the creation of global solutions using a single engine</td>
</tr>
<tr>
<td>Accuracy</td>
<td>High linguistic accuracy offers correct readout for all types of text input including a large dictionary of person names</td>
</tr>
<tr>
<td>Scalability</td>
<td>A wide range of footprints scaling from 2MB to 900 MB ensures optimal performance on embedded platforms from very small mobile devices to powerful multi-media systems</td>
</tr>
<tr>
<td>SSML (Speech Synthesis Markup Language)</td>
<td>Support of SSML allows for TTS vendor-independent markup which is correctly interpreted by Vocalizer Expressive</td>
</tr>
</tbody>
</table>
Vocalizer Expressive
Nuance’s new generation of text to speech solutions.

Languages

Vocalizer offers the world’s largest language and voice portfolio with 42 languages and 71 voices. This universal coverage facilitates the creation of global solutions using a single engine.

- Arabic
- Argentinean Spanish
- Australian English
- Basque
- Belgian Dutch
- Brazilian Portuguese
- British English
- Canadian French
- Cantonese
- Catalan
- Colombian Spanish
- Czech
- Danish
- Dutch
- Finnish
- French
- Galician
- German
- Greek
- Hebrew
- Hungarian
- Irish English
- Italian
- Japanese
- Korean
- Mandarin
- Mexican Spanish
- Norwegian
- Polish
- Portuguese
- Romanian
- Russian
- Scottish English
- Slovak
- South African English
- Spanish
- Swedish
- Taiwanese Mandarin
- Thai
- Turkish
- US English

With approximately 2 MB engine size, the total footprint of a Vocalizer solution can vary from less than 4 MB to over 900 MB depending on voice, language and choice of voice model. With a broad range of options, Vocalizer offers an excellent quality/trade-off for a variety of platforms and applications.

Code

The code size for a fully featured Vocalizer engine is ~2 MB. This can be optimized depending on required language set, features and compiler choices.

Language Data

Language data sizes range from 500 kB to 5 MB. Average size of language data across all languages is ~1.5 MB. When loaded at run time, language data requires ~300 kB of RAM.

Voice Data

<table>
<thead>
<tr>
<th>Voice Model</th>
<th>Data size per voice</th>
<th>Total RAM usage*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compact – small versatile TTS suited for constrained platforms</td>
<td>average: 3 MB</td>
<td>average: 6700 kB</td>
</tr>
<tr>
<td>Standard – natural sounding TTS with attractive footprint</td>
<td>average: 25 MB</td>
<td>average: 7000 kB</td>
</tr>
<tr>
<td>Plus – high quality TTS optimized for navigation, in-car infotainment readout; has basic capabilities for SMS reading</td>
<td>average: 55 MB</td>
<td>average: 9500 kB</td>
</tr>
<tr>
<td>Premium – high quality TTS read-out for SMS and e-mail reading on embedded targets, suitable for all types of applications and use cases</td>
<td>average: 95 MB</td>
<td>average: 23000 kB</td>
</tr>
<tr>
<td>Premium High** - Server solution for highest quality readout</td>
<td>average: 306 MB</td>
<td>average: 23000 kB</td>
</tr>
</tbody>
</table>

* total RAM usage includes code, language data, voice data and dynamic RAM
** Uses same voice repository as premium but different audio data compression

About Nuance Communications

Nuance is the leading provider of speech and imaging solutions for businesses and consumers around the world. Its technologies, applications and services make the user experience more compelling by transforming the way people interact with information and how they create, share and use documents. Every day, millions of users and thousands of businesses experience Nuance’s proven applications and professional services. For more information, please visit www.nuance.com.

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