

# Personal DJ – a voice-controlled media player

With the deployment of gigabyte memories for media content, particularly music, an individual may literally carry thousands of songs in his/her pockets. This raises two challenges:

1. How do you navigate among thousands of songs?
2. How do you categorize thousands of songs so that they can be easily retrieved?

Conventional solutions involve using pre-defined play lists – giving a user experience only marginally better than that of traditional commercial radio, or going through a lengthy selection procedure specifying genre, sub-genre, artist, album, and, eventually the song you want to listen to. In neither case can the user benefit from all the possibilities offered by digital music.

Dialogue Technologies have a solution to both these challenges. The first part involves extracting the metadata embedded in digital audio files storing it in a small relational database. The second part involves retrieving songs from the database by simple asking for it, using Dialogue Technologies' Ergo platform.

Users can control their media player and select the music to play by issuing free-format voice commands. Commands like *"Play country songs from the sixties"* and *"Play the album Ray of Light with Madonna"* allows users to select exactly what they want to listen to using the most natural of interfaces – their own voice and their own language.



*A modern mobile phone comes with memory capacities well over ten gigabytes. This allows you to store more or less all the music you are interested in.*

## Categorizing media files

Most media files contain metadata about the contents of the file. The metadata holds information about artist, name of the song, album, release date, genre of music, etc. Dialogue Technologies' Personal DJ extracts this information and stores it in a small relational database.

Song	Artist	Album	Rating	Genre	Link	Publisher	Composer	Release date	Mood
jamming	bob marley	legend	4	reggae	c:\music\bob marley - legend\14 - jamming.mp3	island	bob marley	02/01/2002	upbeat
is this love	bob marley	legend	3	reggae	c:\music\bob marley - legend\01 - is this love.mp3	polygram	bob marley	02/01/1984	upbeat
three little birds	bob marley	legend	2	reggae	c:\music\bob marley - legend\04 - three little birds.mp3	polygram	bob marley	02/01/1984	upbeat
buffalo soldier	bob marley	legend	3	reggae	c:\music\bob marley - legend\05 - buffalo soldier.mp3	polygram	bob marley	02/01/1984	upbeat
redemption song	bob marley	legend	3	reggae	c:\music\bob marley - legend\11 - redemption song.mp3	polygram	bob marley	02/01/1984	sad
exodus	bob marley	legend	3	reggae	c:\music\bob marley - legend\13 - exodus.mp3	polygram	bob marley	02/01/1984	upbeat
jolene	dolly parton	greatest hits	5	country	c:\music\dolly parton - greatest hits\01 - dolly_parton-jolene-ssr.mp3	bmj international	dolly parton	02/01/2003	sad
9 to 5	dolly parton	greatest hits	3	country	c:\music\dolly parton - greatest hits\02 - dolly_parton-9_to_5-ssr.mp3	bmj international	dolly parton	02/01/2003	upbeat

The purpose of the relational database storage is to benefit from the advanced information retrieval and search tools offered by modern relational database technology.

## Selecting media files

Dialogue Technologies' Ergo platform translates commands and queries in natural language to database queries – e.g. selecting the music to play. The resulting applications have no hierarchy – you can ask any question in any order. You can supply as much information as you want – *Play 'White Christmas' by 'Irving Berlin' sung by 'Bing Crosby'* – or as little information as you want – *Play 'White Christmas.'* In case the Personal DJ finds many alternatives an intelligent dialogue is launched to help the user find exactly what he/she is looking for. Can the requested song not be found a set of help features assists the user.



*The Personal DJ running as a pilot in a BMW.*

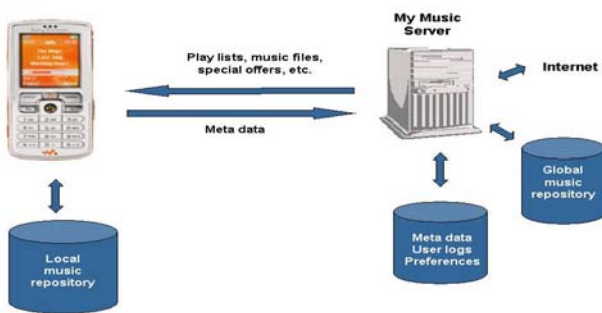
## Product Overview

### Device resident configuration

In the device resident configuration all software necessary resides on a device with a media player, e.g. an iPod, or a mobile phone. The application is used locally to control the player and manage the user's music files.

### Network resident configuration

In the network resident configuration the media files reside on a server in the network. A small application extracts the metadata from media files and inserts that in a relational database.



The user can now start to listen to the songs of his/her choice by simply asking for it. For the music rights owner this makes the entire music repository available to users when and where they want. Network operators benefit from traffic and the user benefits from being able to search larger music databases and download/listen to selected songs.

## Features

The Personal DJ supports the following features:

**Dialogue module:** If there are many answers to a query the system initiates a dialogue with the user to narrow down the number of answers.

**Advanced error handling:** For the cases where the system was unable to understand the query the user is given several options to proceed.

**Disambiguation:** When a query can have several different answers the user is presented with a choice.

**Short commands:** The Personal DJ can search for music using one or a few words, retrieving all entries where the word(s) appears.

**Graphical support:** To assist the user there is a graphical user interface capable of performing all the functions offered by the Personal DJ.

## Characteristics

- Works with most speech recognition systems.
- Web-based development and maintenance tools.
- Accepts the vast majority of all ways of formulating a question.
- Web-based tool for user log analysis.
- Supports voice as well as text input.
- Has its own media player but will also work with most commercial media players.
- Has support for the English, French, Italian, German, Spanish, Swedish, and Danish languages.
- Easy integration in most environments.

## Metadata support

Music meta data is supported according to the ID3 v1, ID3 V2, iTunes meta data, and 3GPP standards. ID3v1 support includes Title, Artist, Album Name, Recording Year, and Genre. ID3v2 support includes Title, Artist, Album Name, Composer, Publisher, Recording Date, Genre, Play Counter, Popularity, and Mood (ID3V2.4). iTunes meta data support includes Title, Artist, Album Name, Composer, Recording Date, and Genre. 3gpp support includes Title, Artist, Album Name, Composer, Recording Date, and Genre.

## System requirements

### Operating Systems

Linux, Windows, Windows CE, Symbian 9.x, Microsoft Mobile.

### Hardware requirements

CPU: 200 MHz

Memory: ~12-15 MB RAM

Storage: 8 MB

## Company

Dialogue Technologies is located in Kista, with a branch office in Heidelberg, Germany.

## Contact us

Dialogue Technologies AB

Finlandsgatan 62

164 64 Kista

+46 8 632 06 30

[www.dialoguetech.com](http://www.dialoguetech.com)

[info@dialoguetech.com](mailto:info@dialoguetech.com)