



# **DLNA in the Car**

Application of DLNA Guidelines to  
Automotive Use Cases  
and  
Considerations for Future Guidelines

**An Overview of the Automotive Task-Force “DLNA in the Car” Report**

This document is an overview of the DLNA Automotive Task-Force (Auto-TF) report entitled “DLNA in the Car”. The full report is available to DLNA members on the DLNA web-site (<http://www.dlna.org/members/> ). The report identifies specific usage areas covered in the DLNA Guidelines relevant to automobiles and the consumption of digital entertainment content in the automobile. For each use case covered in the report, one can view the car from different DLNA architectural perspectives These DLNA architectural alternatives are detailed in the report.

Below we describe DLNA, explain its relevance to the automobile, list use cases covered in the report, provide an example use case and related architecture, and indicate options for future work of the Auto-TF. For details on how DLNA use cases are defined and how these use cases drive the creation of technical guidelines please see “Use Case Scenarios, White Paper, June 2004” available on the DLNA industry website:

[http://www.dlna.org/en/industry/about/DLNA\\_Use\\_Cases.pdf](http://www.dlna.org/en/industry/about/DLNA_Use_Cases.pdf)

## **The Digital Living Network Alliance (DLNA)**

DLNA is a multi-industry alliance with the goal of enabling the sharing of media (audio, images, video) between CE, PC, and mobile devices. Today, there are more than 200 DLNA compliant products from major companies including some who are also suppliers to the automotive industry. The expectation is that the number of compliant products will rapidly increase over the next year as companies build them to the DLNA Guidelines. DLNA is committed to provide implementation guidelines that enable the sharing of media content (audio, images and video) among PC, CE, and mobile devices. These guidelines encompass interoperability concerns around both communications technology and content formats. Thus consumers can expect their devices to work seamlessly together.

## **The Automobile and DLNA**

A significant amount of media consumption occurs in the car [see the report for study data]. Consumers are likely to want to consume the same content inside the vehicle as they do in their homes. Therefore, automotive manufacturers may want to consider enabling DLNA compliant networking to include vehicles.

Automobile manufacturers have unique considerations with regard to media equipment and consumption in the car. For example, media consumption is not the primary task of the driver and automotive infotainment equipment is subject to specific stringent environmental requirements, such as temperature. Automobile infotainment equipment is also sold in lower volumes compared with devices in the CE, PC, and mobile handheld markets. These considerations affect both feature implementation and consumer / manufacturer willingness-to-pay.

## **Use Cases Covered in the Report**

The use cases discussed in the report and summarized in the table below have been identified by the DLNA Auto-TF as being of general interest to the automotive industry and in scope for the DLNA domain as noted with the color coding.

## Usability of existing DLNA Guidelines to Automotive use cases

Automotive Use Case	Comments	Degree of DLNA support
<b>Audio streaming</b>		
Without link or content protection		
With link protection		
With content protection		
<b>Video streaming</b>		
Without link or content protection		
With link protection		
With content protection		
<b>Viewing pictures (render only)</b>		
Without content protection		
With link protection		
With content protection		
<b>Bulk transfer of audio, video or pictures</b>	Upload or download	
Without content protection		
With link protection		
With content protection		
<b>Synchronization</b>		
Without content protection		
With link protection		
With content protection		
<b>Navigation</b>	Application is out of current scope for DLNA because GPS, POI data is out of scope. However, audio, video and picture handling is within scope.	
<b>Telephony</b>	Out of current scope for DLNA.	

### Legend

Color	Meaning
	Enabled by DLNA Guidelines, Informative clarifications sufficient
	Being addressed by DLNA Content Protection and/or DLNAv2 Subcommittees
	Out of current scope for DLNA

## Architecture Implications for Implementing Use Cases

For each use case covered in the report, the same structured approach is used. The report describes the use cases in general terms noting any elements that might place it in the “future version category”. Then the report addresses specific architectural considerations for each use case, along with any implementation issues the Auto-TF considered pertinent.

The report covers the following architectures:

- Car as a DLNA Home Network device
- Car as a DLNA Mobile Handheld device

The first of these is summarized in the next section.

## Car as a DLNA Home Network device

The car is a DLNA Home Network device when it is being used as a monolithic player which can play content from servers such as a mobile handheld device or home server.

The following characteristics apply to the car:

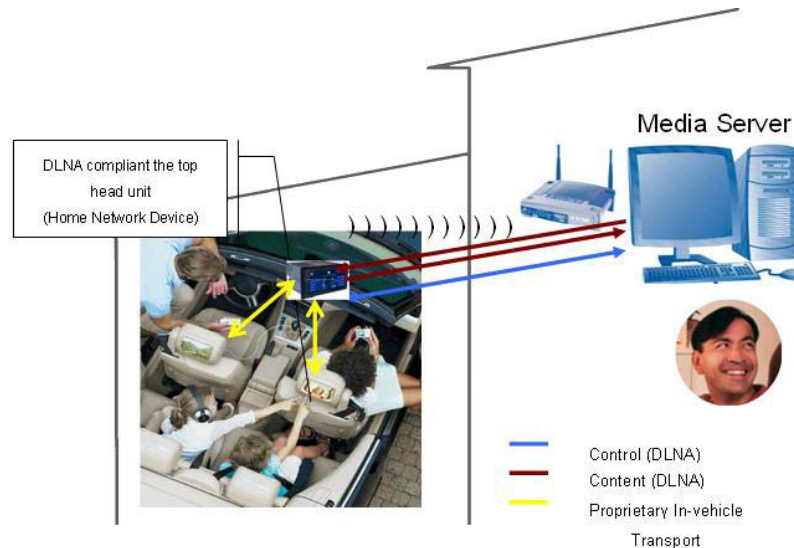
- It would be a WiFi (or Ethernet) station.
- It supports at minimum Home Network Media Profiles (e.g.: MPEG2, LPCM and JPEG).

This model allows the car to connect to the home as a DLNA Home Network device.

### Architecture

In this example architecture, the car is a Home Network Device (HND) or a Mobile Handheld Device (MHD). While it is parked in the garage synchronization becomes possible by using bulk transfer of media (upload/download of home media to/from the car). In this architecture, the access point is outside the vehicle (e.g. in the home) and the car is joining a DLNA home network.

#### Car as Home Network device / Mobile Handheld device while being a WiFi client.



## Future direction and work in the DLNA Auto-TF

The report continues with a focus on the automobile capabilities that may align with future DLNA guidelines and concludes with a set of recommendations for DLNA and the automotive industry.

Among the future topics considered are:

- Content synchronization
- The car as a DLNA Home Network
- Zones in the car and home
- Car specific power management issues
- Metadata for the car
- Car as AP and Client simultaneously
- Wide area streaming for cars