Implementation of integrated functionalities for the HIE prototype

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Abstract
This document describes the final description and integrated functionalities in the Home Information and Entertainment scenario. It provides installation, deployment instructions and user guides for every application in the scenario.

Keyword list
Ambient intelligence, networked home system, home information and entertainment, integrated demonstrator, detailed specification, middleware, context dependent, user profiling, multimedia, intelligent user services, first prototype, media manager core, UPnP, MediaRenderer, MediaServer, content items, Home Agenda, Parental Control, Privacy Enforcement, Monitoring Manager, Personal Context Diary, Board Game, Messaging Board
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4 Conclusions

Acronyms

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1 Introduction

This document is the completion of several deliverables in WP6 (D6.1 HIE Functional Specification and Test Plan; D6.2 HIE Application Specification and D6.3 Implementation of HIE Building Blocks functionalities); which have defined firstly the scenario and later the implementation of the HIE demonstrator. This demonstrator covers one of the three different application domains designed in order to show the functionalities of the developed Amigo system. Its goal is to integrate the Amigo open platform developed in WP3 with the advanced services developed in WP4, adding additional required functionality in order to achieve integration between the home information and home entertainment environments.

During this definition process, partners in WP6 have followed a dual top-down/down-top approach always bounded by the output of WP1 (refined scenarios and use cases) and the functionalities provided by WP3 and WP4 (middleware and IUS results). This approach is shown in the next figure:

![Figure 1: Dual top-down/down-top approach](image)

This document finishes this work by providing complete installation and configuration instructions for every application present in the HIE demonstrator. Additionally exhaustive user guides for every application are also provided here. It's important to stress that the goal of HIE demonstrator was always to create an integrated scenario for digital home and ambient intelligence environments. Therefore, although not every applications is developed with the same degree of integration, most of them remains below two big integrated frameworks corresponding to two big environments (Home Entertainment and Home Information) and two key applications (Media Manager Core and Home Agenda) respectively. The rest of the applications are heavily related and integrated with one of the two key ones creating a big integrated HIE demonstrator in the end,

The HIE demonstrator has been deployed in Telefónica I+D premises in Huesca (Spain). For this purpose a special location was designed and built, providing to the demonstrator with a complete network (both Ethernet and Wifi) and user location infrastructure (based on RFID) with the aim of simulating the environment of an actual digital home. Additionally, the demonstrator has been equipped with a complete set of consumer electronics and devices
(mainly legacy, but also Amigo aware ones) in order to show the benefits of the applications developed. The following pictures show the floor plan, the network infrastructure and the actual appearance of the demonstrator:

Figure 2: HIE demonstrator floor plan

Figure 3: HIE network infrastructure
Figure 4: HIE demonstrator
2 Components description

2.1 Home Agenda

2.1.1 Introduction

2.1.1.1 Provider
Telefónica I+D

2.1.1.2 Development status
Initial release available in M36. The final prototype will be provided at the end of M38.

2.1.1.3 Intended audience
Project partners who want or need to deploy and run the Home Agenda application.

2.1.1.3.1 License
Proprietary.

2.1.1.4 Language
Java

2.1.1.5 Environment info needed if you want to run this sw (service)

2.1.1.5.1 Hardware
Minimum requirements:
- A PC/Laptop with network connection and a web browser integrated could be used to both install and execute all components needed and run the Home Agenda successfully.
- At least one RFID receiver Sensitive Solutions HBL, depends on the area to cover.
- Sensitive Solutions tags that users must carry.
- Serial port free to connect the receiver.

2.1.1.5.2 Software
- Web container implementing the Servlet 2.4 and JSP 2.0 specifications
- Java Runtime Environment 1.5
- The application that access Home Agenda should have a web browser with HTML4.01, JavaScript Core 1.5, Cascading Style Sheets, Cookies and AJAX support.
- Amigo components
- User Location (RFID)

[For environment needed by other AMIGO components needed to run Home Agenda, please refer to the appropriate documentation]
2.1.1.6 Platform
Any system capable of running the software requirements. However, depending on the Amigo components distribution chosen, particularly if the Home Agenda coexists with some of them, the platform to use could be restricted due to Amigo components platform constraints.

2.1.1.7 Files
Available from Amigo repository

2.1.1.8 Documents
Sections 2 of this document provide information about deployment and configuration of the Home Agenda. Tutorial is given in Section 3.

2.1.1.9 Tasks
Integration with other components from the AMIGO system in order to develop a fully functional application. The final release will be available at the end of M38.

2.1.1.10 Bugs
None so far.

2.1.1.11 Patches
None so far.

2.1.2 Deployment

2.1.2.1 System requirements
System requirements considerably vary depending on the platform chosen for the deployment and on the number of users of the application. Therefore, the following values should be evaluated by the person in charge of the system in order to adjust it properly to the actual system employment.

A standalone server used to provide access to family members in a home environment should have the following minimum requirements
- Pentium 1 GHz or equivalent processor
- 512 MB of RAM
- 25 MB of disk space

For System requirements of other AMIGO components needed to run Home Agenda, please refer to the appropriate documentation.

2.1.2.2 Installation
Home Agenda is one of the applications included in the HIE project. This project is provided as a single web application archive (WAR) ready to deploy on a Web container. The WAR file contains the complete directory structure and all files that define the application. First of all, the Web container must be stopped and any previous HIE existing directory structure should be removed.

The HIE application runs from an expanded directory structure. Web Containers or application servers vary in how the WAR file should be deployed and consequently how the expanded directory structure is created. In general, two methods are used:
1. Deploy the compressed WAR file into the web containers working directory. On some web containers (like Tomcat or IBM WebSphere), the deployment process automatically expands the WAR file into the working directory, and from that point forward, the expanded directory is considered to be the application. In this case, place the compressed WAR file in the working directory and restart the web container.

2. Expand the WAR file and deploy the expanded structure as the working directory. On other application servers (like JRun 4 and BEA WebLogic), the WAR file should be manually expanded. In this case expand the war file and place the expanded directory structure in the working directory. Finally restart the web container or application server.

The deployment method you use depends on your web container; refer to the documentation for further information on deploying a WAR file in your specific web container or application server.

For installation of other AMIGO components needed to run Home Agenda, please refer to the appropriate documentation.

When installation is complete, the application can be launched at

http://hostname:port_number/hie/

2.1.2.3 Configuration

In the HIE project there are several applications, so, in order to run all of them properly, it is necessary that all the parameters refering to all the applications are configured correctly. However in this section I will refer only to the parameters related to Home Agenda. For information about the rest of the parameters refer to the correspondent documentation.

Edit the file “ApplicationResources.properties” under the directory JavaSource/conf and set up the following parameters:

- eventspath : which is the complete path of the file events.owl that contains the details for the events created by the application

2.1.2.4 Compiling

Not applicable. All packages are precompiled.
2.2 Monitoring Manager

2.2.1 Introduction

2.2.1.1 Provider
INRIA

2.2.1.2 Development status
Complete.

2.2.1.3 Intended audience
Project partners who want or need to deploy and run the Monitoring Manager (MM) application.

2.2.1.4 License
LGPL

2.2.1.5 Language
Java, JSP

2.2.1.6 Environment info needed if you want to run this sw (service)

2.2.1.6.1 Hardware
Minimum requirements:
- A PC/Laptop with network connection and a web browser is required to both install and execute the rule editor and the monitoring manager runtime
- A PC/laptop connected to a screen is required to display notifications
- A PDA to display notification
- A location system

2.2.1.6.2 Software
- A Tomcat application server to run the rule editor based on JSP 2.0 specifications
- A web browser with HTML4.01, Cascading Style Sheets.
- Java Runtime Environment 1.5
- An OSGi framework implementation (Oscar)
- Oscar for PDA
- The J9 JVM for PDA
2.2.1.7 Platform
Any system capable of running the software requirements.

2.2.1.8 Files
No download currently available.

2.2.1.9 Documents
User guide is given in this document. Tutorial is given in the D6.3. General description of the Monitoring Manager, its architecture and relation to other Amigo components are given in documents D6.1 and D6.2.

2.2.1.10 Tasks
Integration with other components from the AMIGO system in order to develop a fully functional application as described in document D6.2. The final release will be available at the end of M37.

2.2.1.11 Bugs
None so far.

2.2.1.12 Patches
None so far.

2.2.2 Deployment

2.2.2.1 System requirements
For System requirements of AMIGO components needed to run MM, please refer to the appropriate documentation.

2.2.2.2 Download
No download currently available.

2.2.2.3 Installation
The installation of MM is performed in two steps. The reminder rule editor is first installed to manage reminder rules, then the MM runtime and required hardware are installed.

The reminder rule editor consists of JSP pages and Java files, ready to deploy on a web container. First of all, the web container must be stopped and any previous MM existing directory structure should be removed. When installation is complete, the editor can be launched at: http://hostname:port_number/MM_ReminderEditor/remindierEditorProxy/

The MM runtime is available as OSGi bundles and must be installed in an OSGi framework implementation such as Oscar. Further details are given in the User Guide.

For installation of other AMIGO components needed to run MM, please refer to the appropriate documentation.
2.2.2.4 Configuration

The reminder.properties file contains environment parameters required by the MM application.

2.2.2.5 Compiling

Not applicable. All packages are precompiled.
2.3 My News

2.3.1 Introduction

2.3.1.1 Provider
Telefónica I+D

2.3.1.2 Development status
Development started in M30. Initial release available in M33. The final prototype will be provided at the end of M38.

2.3.1.3 Intended audience
Project partners who want or need to deploy and run the My News application.

2.3.1.4 License
Propietary.

2.3.1.5 Language
Java

2.3.1.6 Environment (set-up) info needed if you want to run this sw (service)

2.3.1.6.1 Hardware
Minimum requirements
- A PC/Laptop with serial port, network connection and a web browser integrated could be used to both install and execute all components needed and run My News successfully.
- At least one RFID receiver Sensitive Solutions HBL, depends on the area to cover.
- Sensitive Solutions tags that users must carry.
- Serial port free to connect the receiver.

2.3.1.6.2 Software
- Web container implementing the Servlet 2.4 and JSP 2.0 specifications
- Java Runtime Environment 1.5
- The application that access My News should have a web browser with HTML4.01, JavaScript Core 1.5, Cascading Style Sheets, Cookies and AJAX support.
- Amigo components
- Topic Recognizer (TR)
- User Location (RFID)
- User Modeling and profiling service (UMPS)
[For environment needed by other AMIGO components needed to run My News, please refer to the appropriate documentation]

2.3.1.7 Platform

Any system capable of running the software requirements. However, depending on the Amigo components distribution chosen, particularly if My News coexists with some of them, the platform to use could be restricted due to Amigo components platform constraints.

2.3.1.8 Documents

Section 2 of this document provides information about deployment and configuration of My News. Tutorial is given in Section 3.

2.3.1.9 Tasks

Integration with other components from the AMIGO system in order to develop a fully functional application. The final release will be available at the end of M38.

2.3.1.10 Bugs

None so far.

2.3.1.11 Patches

None so far.

2.3.2 Deployment

2.3.2.1 System requirements

System requirements considerably vary depending on the platform chosen for the deployment and on the number of users of the application. Therefore, the following values should be evaluated by the person in charge of the system in order to adjust it properly to the actual system employment.

A standalone server used to provide access to family members in a home environment should have the following minimum requirements:

- Pentium 1 GHz or equivalent processor
- 512 MB of RAM
- 25 MB of disk space

For system requirements of other AMIGO components needed to run My News, please refer to the appropriate documentation.

2.3.2.2 Installation

My News is one of the applications included in the HIE project. This project is provided as a single web application archive (WAR) ready to deploy on a Web container. The WAR file contains the complete directory structure and all files that define the application. First of all, the Web container must be stopped and any previous HIE existing directory structure should be removed.

The HIE application runs from an expanded directory structure. Web Containers or application servers vary in how the WAR file should be deployed and consequently how the expanded directory structure is created. In general, two methods are used:
1. Deploy the compressed WAR file into the web containers working directory. On some Web containers (like Tomcat or IBM WebSphere), the deployment process automatically expands the WAR file into the working directory, and from that point forward, the expanded directory is considered to be the application. In this case, place the compressed WAR file in the working directory and restart the Web container.

2. Expand the WAR file and deploy the expanded structure as the working directory. On other application servers (like JRun 4 and BEA WebLogic), the WAR file should be manually expanded. In this case expand the war file and place the expanded directory structure in the working directory. Finally, restart the Web container or application server.

The deployment method you use depends on your Web container; refer to the documentation for further information on deploying a WAR file in your specific Web container or application server.

For installation of other AMIGO components needed to run My News, please refer to the appropriate documentation.

When installation is complete, the application can be launched at http://hostname:port/hie/.

2.3.2.3 Configure

In the HIE project there are several applications, so, in order to run all of them properly, it is necessary that all the parameters referring to all the applications are configured correctly. However in this section I will refer only to the parameters related to My News. For information about the rest of the parameters refer to the correspondent documentation.

Edit the file “ApplicationResources.properties” under the directory JavaSource/conf and set up the following parameters:

- **hanewspath**: which is the complete path of the news folder, under the homeagenda folder, in the project HIE.

- **ontnews**: which is the complete path of the file NewsPrefs.owl that contains the ontology of the news.

2.3.2.4 Compile

Not applicable. All packages are precompiled.
2.4 Messaging Board

2.4.1 Introduction
The Messaging Board application is responsible for recording, storing, retrieving and presenting messages for home inhabitants left by other family members or friends, relatives, etc. A person can leave a message either from inside or outside the house.

Depending on where the user is at the moment, different devices or technologies might be required to capture their message. The system recognizes the message recipient and stores the message in their associated “message box”. Different devices or technologies might be involved to present the stored messages, depending on user location, user preferences, the presence of other people, etc.. The user may engage a dialogue interaction for handling stored messages (i.e. re-play, reply, delete).

2.4.1.1 Provider
SingularLogic

2.4.1.2 Development status
Development started in M24. The final prototype will be provided at the end of M40.

2.4.1.3 Intended audience
Project partners.

2.4.1.4 License
The software itself will be under LGPL license, but might make use of proprietary binaries/libraries for which no source code is provided.

2.4.1.5 Language
C#

2.4.1.6 Environment info needed if you want to run this sw (service)

2.4.1.6.1 Hardware
Minimum requirements:
- A PC/Laptop with network connection
- Microphone/phone and loudspeakers for speech input/output

2.4.1.6.2 Software
- Windows 2K/XP
- Amigo .NET 2.0 Based Programming & Deployment Framework from WP3
- Amigo services: UMPS, UIS (specifically VoiceIO), CMS

2.4.1.7 Platform
Microsoft .NET Framework v2.0.
2.4.1.8 Files
No download currently available.

2.4.1.9 Documents
General description of the Messaging Board, its architecture and relation to other Amigo components are given in documents D6.1 and D6.2.

2.4.1.10 Tasks
Integration with other components from the AMIGO system in order to develop a fully functional application as described in document D6.2.

2.4.1.11 Bugs
Not applicable yet.

2.4.1.12 Patches
Not applicable yet.

2.4.2 Deployment

2.4.2.1 System requirements
Not applicable yet.

2.4.2.2 Download
- Win2000 with sound card PC or laptop
- Nuance OSR 3.0 speech recognition engine (limited license provided by SingularLogic)
- At least on speech recognition language pack (default English en_US)
- Nuance RealSpeak 4.0 text-to-speech synthesis engine (limited license provided by SingularLogic)
- At least on speech synthesis language pack (default English en_US)
- Amigo speech interface: VoiceIO service
- Amigo User Modeling & Profiling Service: Reasoning module
- MS SQL 2005 database server (the default distribution included in VS2005)

2.4.2.3 Installation
1. If not installed, install Nuance OSR 3.0 speech recognition engine and configure license manager
2. If not installed, install the default speech recognition language pack (default English en_US). Additional language packs can be installed later on.
3. If not installed, Nuance RealSpeak 4.0 text-to-speech synthesis engine and configure license manager
4. If not installed, install the default speech synthesis language pack (default English en_US). Additional language packs can be installed later on.
5. Install the MessagingBoard.msi. The package will install VoiceIO service, MessagingBoard application and the required application resources for English language. The default installation dir is C:\Amigo. ATTENTION: the C:\Amigo dir will be overwritten!

2.4.2.4 Configuration
See the Messaging Board user manual in this document.
2.5 Percodi

2.5.1 Introduction

2.5.1.1 Provider
Fraunhofer SIT

2.5.1.2 Development status
Development started in M24. The final prototype will be provided at the end of M40.

2.5.1.3 Intended audience
Project partners who want or need to deploy and run or access to the Percodi application.

2.5.1.4 License
Proprietary.

2.5.1.5 Language
.NET/C#

2.5.1.6 Environment info needed if you want to run this sw (service)

2.5.1.6.1 Hardware
- Context Diary acquisition phase (can be simulated)
  - Location/tracking sensors with sufficient precision to track users in a room and their proximity to devices.
    - Context Diary usage phase
      - Tablet PC or Laptop to interact with Percodi
      - PC/Laptop running Amigo MW and IUSs

2.5.1.6.2 Software
- .NET Framework 2.0
- Visual Studio 2005 for configuring and compiling, if necessary
- Amigo components
- Context Management Service (Context History component)

[For environment needed by other AMIGO components needed to run MMC, please refer to the appropriate documentation]

2.5.1.7 Platform
Any system capable of running the software requirements.

2.5.1.8 Files
Not applicable yet
2.5.1.9 **Documents**

General description of Percodi, its architecture and relation to other Amigo components are given in documents D6.1 and D6.2.

2.5.1.10 **Tasks**

Integration with other components from the AMIGO system in order to develop a fully functional application as described in document D6.2. The final release will be available at the end of M40.

2.5.1.11 **Bugs**

None so far.

2.5.1.12 **Patches**

None so far.

2.5.2 **Deployment**

2.5.2.1 **System requirements**

System requirements considerably vary depending on the platform chosen for the deployment and on the number of users of the application. Therefore, the following values should be evaluated by the person in charge of the system in order to adjust it properly to the actual system employment.

- Pentium 1 GHz or equivalent processor
- 1024 MB of RAM
- 15 MB of disk space

For System requirements of other AMIGO components needed to run the Personal Context Diary, please refer to the appropriate documentation.

2.5.2.2 **Download**

No download currently available.

2.5.2.3 **Installation**

The Percodi application comes as a MS Windows installer package.

2.5.2.4 **Configuration**

There are two config files, which can be found in the same folder as the executable. They are both self descriptive.

2.5.2.5 **Compiling**

Not applicable.
2.6 Media Manager Core

2.6.1 Introduction

2.6.1.1 Provider
Telefónica I+D

2.6.1.2 Development status
Development started in M24. Current release available since M30. The final prototype will be provided at the end of M40.

2.6.1.3 Intended audience
Project partners who want or need to deploy and run the Media Manager Core application.

2.6.1.4 License
Proprietary.

2.6.1.5 Language
Java

2.6.1.6 Environment info needed if you want to run this sw (service)

2.6.1.6.1 Hardware
Minimum requirements:

- A PC/Laptop with serial port, network connection and a web browser integrated could be used to both install and execute all components needed and run the MMC successfully. Nevertheless, it is greatly advisable to distribute services in different computers and access the MMC from a portable device to fully profit the features that MMC provides.
- VTT SoapBox wireless sensor device with receiver for 3D interaction features.

2.6.1.6.2 Software
- Web container implementing the Servlet 2.4 and JSP 2.0 specifications
- Java Runtime Environment 1.5
- The application that access MMC should have a web browser with HTML4.01, JavaScript Core 1.5, Cascading Style Sheets, Cookies and AJAX support.
- Amigo components
- Oscar (http://amigo.gforge.inria.fr/obr/tools/)
- Oscar should have the following bundles installed and running with all their dependencies:
  - System Bundle
  - Shell Service
  - Table Layout
- Shell GUI
- Shell Plugin
- Bundle Repository
- Amigo Core
- Amigo ksoap binding
- Amigo ksoap export
- Amigo wsdisclosure
- Domoware UPnP Base Driver 3.0.2
- Domoware UPnP Base Driver Extra 1.0.0
- HTTP Service
- Log4j
- OSGi Service
- Service Binder
- Servlet
- Shell TUI
- TID Content Discovery

- Content Distribution Service
- Data Store Service
- TID Content Adaptation Media Server
- TID Content Discovery Service
- TID Multimedia Context Source
- 3D Gesture Service software (Optional)

[For environment needed by other AMIGO components needed to run MMC, please refer to the appropriate documentation]

2.6.1.7 Platform

Any system capable of running the software requirements. However, depending of the Amigo components distribution chosen, particularly if the MMC coexists with some of them, the platform to use could be restricted due to Amigo components platform constraints.

2.6.1.8 Files

Files required to run the application can be downloaded from the Inria Gforce repository available at:

/svn+ssh://login@scm.gforge.inria.fr/svn/amigo

2.6.1.9 Documents

Next sections of this document provide information about deployment and configuration of the Media Manager Core. Also a tutorial is provided in the next sections.

General description of Media Manager Core, its architecture and relation to other Amigo components are given in documents D6.1 and D6.2.
2.6.1.10 Tasks
None

2.6.1.11 Bugs
None so far.

2.6.1.12 Patches
None so far.

2.6.2 Deployment

2.6.2.1 System requirements
System requirements considerably vary depending on the platform chosen for the deployment and on the number of users of the application. Therefore, the following values should be evaluated by the person in charge of the system in order to adjust it properly to the actual system employment.

A standalone server used to provide access to family members in a home environment should have the following minimum requirements
- Pentium 1 GHz or equivalent processor
- 512 MB of RAM
- 25 MB of disk space

For System requirements of other AMIGO components needed to run MMC, please refer to the appropriate documentation.

2.6.2.2 Download
Files required to run the Media Manager Core application can be downloaded from the Inria Gforce repository available at:
/svn+ssh://login@scm.gforge.inria.fr/svn/amigo

2.6.2.3 Installation
MMC is provided as a web application belonging to the Home Information and Entertainment complete application. This way, MMC is a part of (war) file ready to deploy on a web container. The WAR file contains the complete directory structure and all files that define the application. First of all, the web container must be stopped and any previous MMC existing directory structure should be removed.

The MMC application runs from an expanded directory structure. Web Containers or application servers vary in how the WAR file should be deployed and consequently how the expanded directory structure is created. In general, two methods are used:

3. Deploy the compressed WAR file into the web containers working directory. On some web containers (like Tomcat or IBM WebSphere), the deployment process automatically expands the WAR file into the working directory, and from that point forward, the expanded directory is considered to be the application. In this case, place the compressed WAR file in the working directory and restart the web container.

4. Expand the WAR file and deploy the expanded structure as the working directory. On other application servers (like JRun 4 and BEA WebLogic), the WAR file should be manually expanded. In this case expand the war file and place the expanded directory
structure in the working directory. Finally restart the web container or application server.

The deployment method you use depends on your web container; refer to the documentation for further information on deploying a WAR file in your specific web container or application server.

This is a quick installation guide. For further details, please refer to the online user guides for the middleware components at http://amigo.gforge.inria.fr/home/index.html

2.6.2.3.1 Install EMIC Data Store

Install .NET Framework 3.0

Follow the installation instructions for this software at www.microsoft.com.

Install SQL Express Server

1. Install SQL Express Server 2005
2. Configure it:
   a. Go to My Computer -> admin -> Services and Applications -> SQL Native Client Configuration -> Aliases and click Right Button-> New Alias..
   b. Enter data to obtain

   amigodatabase

   TCP/IP

   1433

   127.0.0.1

   c. Go to Services and Applications -> SQL Server -> SQL Network -> Protocols for SQL Express
   d. Double-Click TCP/IP and set Enable to 'yes' value
   e. Under 'IPAdresses' modify to leave it like this

   Under IP1

   Active  yes

   Enabled yes

   Ip Address  10.95.108.155

   Tcp Dynamic Ports  0

   Tcp port  1433

   Under IP2

   Active  yes

   Enabled yes

   Ip Address  127.0.0.1

   Tcp Dynamic Ports  0

   Tcp port  1433
Under IPall

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP Dynamic Ports</td>
<td>0</td>
</tr>
<tr>
<td>TCP port</td>
<td>1433</td>
</tr>
</tbody>
</table>

f. Accept changes and check the Protocols for SQL Express window: it should look like this

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shared Memory</td>
<td>Enabled</td>
</tr>
<tr>
<td>Named Pipes</td>
<td>Disabled</td>
</tr>
<tr>
<td>Via</td>
<td>Disabled</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

EMIC WS DataStore

1. Double-click on the .msi file. This will start a windows service at the end of the installation.
2. Check for it running. If it is not, start it from the Start Menu.

2.6.2.3.2 Install EMIC Content Distribution

Install .NET Framework 3.0

Follow the installation instructions for this software at www.microsoft.com.

EMIC Content Distribution

1. First of all, check there are no UPnP AV renderers running in the same network.
2. Then, double-click on the .msi file. This will start a windows service at the end of the installation.
3. Check for it running. If it is not, start it from the Start Menu.
4. Please note that you need the Data Store service running for the ContentDistribution service to run properly.

2.6.2.3.3 Install TID CADMS

1. Follow this software’s installation instructions
2. After installation, you will need a client pgAdmin III is pretty good.
3. Edit the Configuration files (Under the PostGreSQL Start Menu) as needed to provide access from other hosts.

TID CADMS

1. Unzip the contents of the package in the desired destination keeping the folder structure
2. In order to properly initialize the PostGRE DataBase, execute the scripts contained in the DB\ folder in the following order: createRole.sql, createDB.sql, createSeqs.sql, createTables.sql and reset.sql. The latter can be used to clean up the data base, deleting all its contents and creating the required default containers. The dropall.sql
drops all contents, tables and sequences, leaving the database in the same state as executing the first two scripts.

3. Edit the file "amigocadms.properties" under the CONF folder in order to set up the required parameters for proper functioning (examples are provided). The remaining parameters are established by default:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>content.path</td>
<td>C:/Content</td>
<td>Absolute path pointing the content to be loaded, classified and shared.</td>
</tr>
<tr>
<td>content.import.path</td>
<td>C:/Import</td>
<td>Absolute path indicating the destination folder for the imported resources.</td>
</tr>
<tr>
<td>network.interface.addr</td>
<td>10.95.105.233</td>
<td>Network address. Only to be specified if multiple network interfaces exist.</td>
</tr>
<tr>
<td>network.interface.port</td>
<td>9999</td>
<td>Port address to be used by the UPnP HTTP Servers.</td>
</tr>
<tr>
<td>content.server.port</td>
<td>10010</td>
<td>Port address to be used by the Content HTTP server</td>
</tr>
<tr>
<td>registry.type</td>
<td>1</td>
<td>Specification of the content registry type: 0: Volatile Registry 1: PostGRESQL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2: Amigo DataStore (Not yet supported)</td>
</tr>
<tr>
<td>db.url.content</td>
<td>jdbc:postgresql://10.95.108.155/Content</td>
<td>Database address (for PostGRE registry)</td>
</tr>
<tr>
<td>adaptations.folder.path</td>
<td>C:/CADMS_AdaptedContent</td>
<td>Absolute path indicating the destination folder for the adapted resources.</td>
</tr>
<tr>
<td>adaptations.threads</td>
<td>3</td>
<td>Number of threads that execute the adaptations</td>
</tr>
</tbody>
</table>

Minimal configuration requires:
1. Setting content.path, content.import.path and adaptations.folder.path to existing directories' paths
2. Changing the value of the ip address in the db.url.content property to the ip of the machine running PostGre database.

2.6.2.3.4 Install TID Content Discovery

You need to have PostGreSQL8.1 installed. Please follow the instructions of the previous section to do so.
You need to install OSCAR (OSGi implementation). You can check the OSGi Amigo Development Framework online documentation for this purpose.
You need to install 2 bundles that are available in the OSGi Amigo Oscar Bundle Repository:
- Domoware Base Driver 3.0.3
• Domoware Base Driver Extra 1.0.0

If you have problems with upnp discovery (Content Discovery is not printing messages about DMS’s being found when you have the CADMS running, no content seems to be available in the MMC, ...), contact with the Amigo TID team. Although it should be now in the OSGi Amigo OBR, we have a patched version of Domoware Base Driver 3.0.3 that works.

TID Content Discovery

Content Discovery requires an accessible PostgreSQL 8.1 database with a given structure and role. To create this structure,

1. Extract the .sql files under the db/ directory of the downloaded jar file (using a ZIP tool) or from the source code distribution.
2. IMPORTANT: If you have already created the CADMS Database with the given scripts you do not need to run the createRole.sql script again. In order to properly initialize the PostGRE DataBase, execute the scripts contained in the DB/ folder in the following order: createRole.sql (only if you have not installed and configured the CADMS), createDB.sql, createSeqs.sql, createTables.sql and reset.sql. The latter can be used to clean up the data base, deleting all its contents and creating the required default containers. The dropall.sql drops all contents, tables and sequences, leaving the database in the same state as executing the first two scripts.
3. Install AmigoContentDiscovery.jar in OSCAR.
4. Run the bundle once for the automatic deployment of the configuration files
5. Stop the bundle and edit the file “contentdiscover.properties”. This will be found under the OSGi framework working directory (see its documentation), under the “amigocntdis/conf/” subdirectory. Edit the following properties accordingly:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>semantic.registry = ON</td>
<td>Switches the semantic framework activation status ON/OFF</td>
</tr>
</tbody>
</table>
| semantic.registry.type = 1 | Specifies the way semantic information is stored.  
0: File Semantic Registry (stored in files) NOT SUPPORTED ANYMORE  
1: DB Semantic Registry (stored in database) |
| network.interface.addr = 10.95.105.233 | Network address. Only to be specified if multiple network interfaces exist. |
| network.interface.port = 9999 | Port address to be used. |
| registry.type = 1     | Specification of the content registry type:  
0: Volatile Registry NOT SUPPORTED ANYMORE  
1: PostGRESQL based registry |
| db.url.content = jdbc:postgresql://10.95.108.155/ContentDiscovery | Database address (for PostGRE registry) |
Minimal configuration requires:

1. Changing the value of the hostname/IP address in the `db.url.content` property to
   the hostname/IP address of the machine running PostGre database.

**IMPORTANT NOTE:** If your application does not require semantic description of content items
(it is not mandatory for Media Manager), it is advisable to set `semantic.registry = OFF`
for performance reasons.

**2.6.2.3.5 Install TID Media Manager Application**

You need to have **Apache Tomcat 5.0 or newer installed**. Please follow the
software’s installation instructions to do so.

**TID Media Manager Application**

1. Check that Tomcat is stopped.
2. Just deploy the `.war` file in the Tomcat’s `WebApps` directory: that is,
   `[Tomcat's installation path]\webapps` (i.e. `D:\apache-tomcat-6.0.13\webapps`)
3. You will need to open the `.war` file (using a ZIP tool) and edit the
   `ApplicationResources.properties` file. This will be found under the “WEB-INF\classes\conf” subdirectory. Edit the following properties accordingly:

   ```
   # Location of ContentDistribution service
   content.distribution.url=http\://antares\:2342/ContentDistribution
   # Location of DVB
   dreambox.ip=http\://10.95.59.4
   # Location of Vlc Server
   vlcServer.ip=10.95.59.6
   # Vlc Server Port
   vlcServer.clientPort=5555
   # Dynamically zap channels (set false to use xml file)
   dynamicZapping=true
   ```

4. You will need to open the `.war` file (using a ZIP tool) and edit the `mmc.properties` file.
   This will be found under the “conf/” subdirectory. Edit the following properties accordingly:

   ```
   # PARENTAL CONTROL
   pcEnabled=true
   # CONTEXT SOURCE
   contextsource.file.path=C:\AmigoOSGi/MultimediaModelFile.rdf
   ```

5. Start (or restart) Tomcat.

**Minimal configuration requires:**
1. Changing the value of the hostname/IP address in the `content.distribution.url` property of the `ApplicationResources.properties` file, to the hostname/IP address of the machine running the EMIC Content Distribution service.

2. Specifying the path to the multimedia context source model in the `contextsource.file.path` property of the `mmc.properties` file. This will be `[oscarpath]/MultimediaCSFileCreator/MultimediaModelFile.rdf`

2.6.2.3.6 Install TID Multimedia CS

You need to have this component running in the same machine as the Media Manager if you want to activate the Media Manager Context Source. You need to install OSCAR (OSGi implementation). You can check the OSGi Amigo Development Framework online documentation for this purpose. You need to install the following bundles:

1. amigo_core
2. amigo_ksoap_binding
3. amigo_ksoap_export
4. amigo_wsdiscovery
5. jena-2.4
6. Context Helper
7. Context Source Manager
8. context-broker-service

Actually, installing the last three with “Deploy all” should make it happen. Then deploy MultimediaContextSource.jar in oscar.

2.6.2.4 Startup

The fail safe order for starting up components is the following:

1. Start Content Discovery, CADMS and UPnP AV Servers in the order you wish
2. Start WS Data Store
3. Start Content Distribution and wait for it to detect data store component before starting any UPnP AV renderers
4. Start UPnP AV renderers
5. Start Tomcat

When installation is complete, the application can be launched at

http://hostname:port_number/hie

2.6.2.5 Configuration

2.6.2.5.1 Application configuration

You will need to open the `.war` file (using a ZIP tool) and edit the `ApplicationResources.properties` file. This will be found under the "WEB-INF\classes\conf" subdirectory. Edit the following properties accordingly:

# Location of ContentDistribution service. This is not mandatory since MMC should discover it automatically
content.distribution.url=http\://antares\:2342/ContentDistribution
# Location of DVB
dreambox.ip=http://10.95.59.4

# Location of Vlc Server
vlcServer.ip=10.95.59.6

# Vlc Server Port
vlcServer.clientPort=5555

# Dynamically zap channels (set false to use xml file)
dynamicZapping=true

You will need to open the .war file (using a ZIP tool) and edit the mmc.properties file. This will be found under the “confi” subdirectory. Edit the following properties accordingly:

# PARENTAL CONTROL
pcEnabled=true

# CONTEXT SOURCE
contextsource.file.path=C:/AmigoOSGi/MultimediaModelFile.rdf

2.6.2.5.2 Network configuration
In order to let the application work properly UPnP traffic should be allowed in the network. Note: Windows firewall does not allow UPnP traffic by default; this option should be changed in order to use the application successfully.

2.6.2.5.3 Compiling
Not applicable. All packages are precompiled.
2.7 Context Dependent Personalization of Multimedia

2.7.1 Introduction

2.7.1.1 Provider
VTT

2.7.1.2 Development status
Development started in M24. Initial release is available. The final prototype will be provided at the end of M40 after testing.

2.7.1.3 Intended audience
Project partners who want context-dependent personalisation of multimedia retrieval.

2.7.1.4 License
Proprietary.

2.7.1.5 Language
C#

2.7.1.6 Environment info needed if you want to run this sw (service)

2.7.1.6.1 Hardware
Minimum requirements:
- A PC/Laptop with serial port and network connection could be used to both install and execute all components needed and run the application successfully.

2.7.1.6.2 Software
- .Net
- Visual Studio 2005 for configuring and compiling, if necessary
- Amigo components
- Context Management Service: Context Sources and Context Interpreter
- User Modelling and Profiling Service

[For environment needed by each of AMIGO components, please refer to the appropriate documentation]

2.7.1.7 Platform
Any system capable of running the software requirements.

2.7.1.8 Files
The required functionality is implemented in files included into getPrefsService.zip
2.7.1.8.1 Documents

General description of Context-Dependent Personalisation of Multimedia application, its architecture and relation to other Amigo components are given in documents D6.1 and D6.2.

2.7.1.9 Tasks

Testing. The final release will be available at the end of M40.

2.7.1.10 Bugs

None so far.

2.7.1.11 Patches

None so far.

2.7.2 Deployment

2.7.2.1 System requirements

System requirements considerably vary depending on the type of the multimedia and its storage, chosen for the deployment. A standalone application, used to provide recommendations to family members in a home environment should have the following minimum requirements

- Pentium 1 GHz or equivalent processor
- 512 MB of RAM
- 25 MB of disk space

2.7.2.2 Download

Files required to run the PC application can be downloaded from the Inria Gforce repository available at:

/svn+ssh://login@scm.gforge.inria.fr/svn/amigo

2.7.2.3 Installation

This application is provided as a single archive (zip), which contains the complete directory structure and all files required by the application. However, it is needed also to install UMPS service with its files, and (if required) CMS service. For installation of these and other AMIGO components needed to run the application, please refer to the appropriate documentation.

Installation of CMS service (Home Agenda Context Source and Context Interpreter) is not mandatory, but it is desirable because some of service functionality depends on availability of these components. For example, if it is known that users have only one hour free time before next appointment, movies longer than one hour will not be recommended.

After UMPS installation it is needed to create profiles of new users and to specify their preferences, (instructions are provided in UMPS documentation). The service uses two branches of preferences:

1) preferences stored under brunchID = "Preferences:MultiMediaPrefs:MoviesPrefs". This group of preferences contains commonly used in personalisation of multimedia preferences for actors, genres etc.
Additionally, this branch contains preferences concerning relative importance of movie metadata, for example, if for some user it is more important who is starring than what is the movie genre, such should set high preference value for “ActorImportance” setting. Rank of a video is calculated as weighted sum of preferences for its metadata descriptors, and weights are these “relative importance” settings. If user profile does not contain “relative importance” setting for some metadata descriptor, it will be weighted with small default weight. It is important that terms in “relative importance” settings correspond to terms of preferences for actors, genres etc. For example, if preference for “genre” has settingID = “Preferences:MultiMediaPrefs:MoviesPrefs:MoviesGenrePrefs”, then relative importance of genre must have settingID = “Preferences:MultiMediaPrefs:MoviesPrefs:MoviesGenreImportance” – that is, string “Prefs” should be replaced with string “Importance”. Other changes will result in failure to find relative importance of movie genre, e.g., Preferences:MultiMediaPrefs:MoviesPrefs:MovieGenreImportance will not work.

2) Preferences stored under the branchID = "Preferences:GenericInterests". This group of preferences is used to specify that the user is always interested in e.g. astronomy or red Indians. So if movie metadata contains “isAbout: red_Indians” description, the preference value of user’s generic interest in red Indians (weighted with “relative importance of generic interests” setting value) will be summed up with preference values of other metadata descriptors, weighted with their relative importance.

2.7.2.4 Configuration

2.7.2.4.1 Application configuration

Application requires ContentWorld.owl and ContextWInstances.owl files to be stored in C:\UMPS\config1 directory if metadata comes in MMC format.

For multi-user environment application calculates preference value of multiple users by using so-called “average without misery” strategy: if preference values of all users exceed MiseryThreshold, average of user preferences is calculated. Otherwise minimum of preference values is returned. UMPS stores user preferences in a range from -5 to 5, where 5 denotes strong liking and -5 denotes strong dislike. Default value of MiseryThreshold is 3, but it can be changed: file C:\UMPS\config1\port_number.txt contains two values: the first value is port number, and the second value is MiseryThreshold. If no file is provided, default values are used.

2.7.2.4.2 Network configuration

Application reads port number from C:\UMPS\config1\port_number.txt file, this should be the first line of file. If no file is provided, default port number 8040 is used.

2.7.2.5 Compiling

Not applicable. All packages are precompiled.
2.8 Parental Control

2.8.1 Introduction

2.8.1.1 Provider
ICCS

2.8.1.2 Development status
Development started in M24. Initial release available in M30. The final prototype will be
provided at the end of M40.

2.8.1.3 Intended audience
Project partners who want or need to deploy and run the Parental Control application
integrated in their own applications.

2.8.1.4 License
Proprietary.

2.8.1.5 Language
Java.

2.8.1.6 Environment info needed if you want to run this sw (service)

2.8.1.6.1 Hardware
Minimum requirements:

- A PC/Laptop with Internet access.
- A PDA/Mobile phone with WiFi support

2.8.1.6.2 Software
PC/Laptop:

- Java Runtime Environment 1.5
- Jakarta Tomcat 5.0.28
- Oscar OSGi
- .Net 2.0 and 3.0 Frameworks
- MySQL 5.0 or newer
- CADMS Component
- TID Content Discovery Component
- EMIC Content Distribution Service
- EMIC Data Store Service
- TID MMC Component
- UPnP renderers
PDA/Mobile phone:
- MIDP 2.0
- CLDC 1.0

2.8.1.7 Platform
Any system capable of running the software requirements.

2.8.1.8 Files
The required functionality is incorporated into: (i) the PC.jar which is an OSGi bundle, (ii) MobileMother.jar and MobileMother.jad (for the PDA/Mobile phone) (iii) MobileFather.jar and MobileFather.jad (for the PDA/Mobile phone) all available under [amigo_gforge/ WP6/ParentalControl]. The required MySQL database can be created through the parental_control.sql MySQL script available at same directory. Finally, under PCTest dir are included some test files for mother (Mother dir with username / password MOTHER / MOTHER) and father (Father dir with username / password FATHER / FATHER).

2.8.1.9 Documents
A general description of the application, its design characteristics and its relation to other Amigo components are given in documents D6.1 and D6.2.

2.8.1.10 Tasks
Integration with other components from the AMIGO system in order to develop a fully functional application as described in document D6.2. The final release will be available at the end of M37.

2.8.1.11 Bugs
None reported so far.

2.8.1.12 Patches
None reported so far.

2.8.2 Deployment

2.8.2.1 System requirements
System requirements considerably vary depending on the platform chosen for the deployment and on the number of users of the application. Therefore, the following values should be evaluated by the person in charge of the system in order to adjust it properly to the actual system employment.

A standalone workstation used to execute the Parental Control application is adequate if the following characteristics are satisfied
- Pentium 1 GHz or equivalent processor
- 512 MB of RAM
- 300 MB of disk space for Oscar OSGi, the remaining framework and the Parental Control bundle.
2.8.2.2 Download
Files required to run the PC application can be downloaded from the Inria Gforce repository available at:

/svn+ssh://login@scm.gforge.inria.fr/svn/amigo

2.8.2.3 Installation
For the installation of the Parental Control application the following steps are required:

1. Install the Microsoft SQL Express 5.0, along with the .NET Frameworks 2.0 and 3.0.
2. Install the CADMS and Content Discovery Components following the guidelines provided.
3. Install the EMIC Components, Content Distribution and WSDataStore from the corresponding .msi files available at [amigo_gforge].
4. Install the Oscar OSGi implementation available at http://amigo.gforge.inria.fr/obr/tools/index.html. Comment the proxy-related lines inside the system.properties file of Oscar (.lib path).
5. After downloading the Oscar file, unzip it and place the ECAXML.xsd file in the Oscar root directory. Afterwards, start Oscar by opening oscar.bat. (assuming the windows version). In the opening prompt enter a name for your profile, and the Oscar GUI will appear.
6. After that go to the OBR tab and enter the URL: http://amigo.gforge.inria.fr/obr/v2/repository.xml to download the Amigo core bundles: amigo_ksoap_binding, amigo_ksoap_export, amigo_core, amigo_wsdiscovery. Press Start All for each of the above to deploy them.
7. Finally, following the same procedure start the following bundles that are required for the PC functionality:
   a. log4j
   b. Service Binder
   c. Servlet
   d. HTTP Service (+ Amigo mods)
   e. jena-2.4
   f. context-broker-service
   g. Context Source Manager
   h. Context Helper
   i. ANS_API
   j. ANS_Jess
   k. Amigo ANS
   l. Domoware UPnP Base Driver Extra 1.0.0
   m. OSGi Service
   n. Domoware UPnP Base Driver 3.0.3
8. Install Jakarta Tomcat as a Windows service through command prompt as follows:

   %JAKARTA_TOMCAT_DIR%\bin>service.bat install
(where [%JAKARTA_TOMCAT_DIR% is the directory where Jakarta-tomcat-5.0.28 is placed).

9. Edit a3servers.xml file located in [%JAKARTA_TOMCAT_DIR%\conf directory and change every occurrence of string “localhost” with the actual IP Address of the machine where the Tomcat is running (for example “147.102.7.39”) or leave it as localhost if the whole application will run in a single machine.

10. Edit a3servers.xml file of PC.jar bundle as before (alternatively copy paste the file from [%JAKARTA_TOMCAT_DIR%\conf dir)

11. Deploy PC.jar as a regular bundle in Oscar platform.

12. Edit the classpath environment variable and include all necessary jars files located in Lib directory (under PCTest directory in gforge repository). This configuration has to be done to every machine that hosts the class files (PCTest /dev directory in gforge repository).

13. Edit the jndi.properties file (under PCTest directory and change every occurrence of string “localhost” with the actual IP Address of the machine where the Tomcat is running (for example “147.102.19.26”) or leave it as localhost if the whole application will run in a single machine.

14. Batch files (available in gforge repository under PCTest directory) have to be placed to the same folder with dev and com directories for starting the application for mother and father with names Mother and Father respectively.

15. Install the jar and jad files for the PDAs/Mobile phones following the guidelines of the device’s MIDlet Manager. Edit the SERVER_URL of mobile.properties file and set the IP with the one that Tomcat && Oscar are running.

Afterwards, when the aforementioned bundles are Active, install and start the AmigoContentDiscovery bundle provided by TID, following the instructions provided in the HIE installation guide. Note that the user should have created the mobile and pc_rules MySQL databases provided in order to manage the http communication between the mobile devices PC rules respectively. Additionally, all this functionality is provided through the MMC component using a web interface. For the PC Rules’ management, the pc_rules directory should have been deployed on Tomcat, providing a dynamic web interface for the setting and editing of user preferences. For this reason, apart from the MySQL service, UMPS’s (WP4) FeedbackAnalyser, StaticModeler and ReasoningModule should be running and the Oscar OSGi UMPS client profile should be active (provided by TID) in order to get the UMPS UserID, as this is the main User Management service of Amigo.

2.8.2.4 Configuration

In order to let the application work properly, some ports of the machine hosting the managing of the communication between children and parents (actually where Tomcat is hosted) have to be explicitly configured to be open, as windows firewall does not allow communication through them by default. These ports are: 16301, 16302, 16400 and 8020. Additionally, every machine that will run a batch file (Mother or Father) has to let open the 16400 and 8020 ports.

2.8.2.5 Compiling

Not applicable. All packages are precompiled. However, the interested user can download the source code (Java source files) from the [amigo_gforge] repository for this WP6 application.
2.9 Privacy Enforcement

2.9.1 Introduction

2.9.1.1 Provider
ICCS

2.9.1.2 Development status
Development started in M24. Initial release available in M30. The final prototype provided at the end of M40.

2.9.1.3 Intended audience
Project partners who want or need to deploy and run the Privacy Enforcement application integrated in their own applications.

2.9.1.4 License
Proprietary.

2.9.1.5 Language
Java.

2.9.1.6 Environment info needed if you want to run this sw (service)

2.9.1.6.1 Hardware
Minimum requirements:
- A PC/Laptop with Internet access.
- Existing sensors integrated within the Amigo home.

2.9.1.6.2 Software
- Java Runtime Environment 1.5
- SQL Express 5.0
- .Net 2.0 and 3.0 Frameworks
- MySQL 5.0 or newer
- Oscar OSGi
- Tomcat 5.0 or newer
- CADMS Component
- TID Content Discovery Component
- EMIC Content Distribution Service
- EMIC Data Store Service
- TID MMC Multimedia Context Source
- TID MMC Component
- UPnP renderers
2.9.1.7 Platform
Any system capable of running the software requirements.

2.9.1.8 Files
The required functionality is incorporated into the PrivacyEnforcement.jar which is an OSGi bundle available at [amigo_gforge]. The required MySQL database can be created through the privacy_enforcement.sql MySQL script also available at gforge.

2.9.1.9 Documents
A general description of the application, its design characteristics and its relation to other Amigo components are given in documents D6.1 and D6.2.

2.9.1.10 Tasks
Integration with other components from the AMIGO system in order to develop a fully functional application as described in document D6.2.

The final release will be available at the end of M37.

2.9.1.11 Bugs
None reported so far.

2.9.1.12 Patches
None reported so far.

2.9.2 Deployment

2.9.2.1 System requirements
System requirements considerably vary depending on the platform chosen for the deployment and on the number of users of the application. Therefore, the following values should be evaluated by the person in charge of the system in order to adjust it properly to the actual system employment.

A standalone workstation used to execute the Privacy Enforcement application is adequate if the following characteristics are satisfied

- Pentium 1 GHz or equivalent processor
- 512 MB of RAM
- 30 MB of disk space for Oscar OSGi, the remaining framework and the PrivacyEnforcement bundle.

2.9.2.2 Download
Files required to run the Privacy Enforcement application can be downloaded from the Inria Gforce repository available at:

/svn+ssh://login@scm.gforge.inria.fr/svn/amigo

2.9.2.3 Installation
For the installation of the Privacy Enforcement application the following steps are required:

1. Install the Microsoft SQL Express 5.0, along with the .NET Frameworks 2.0 and 3.0.
2. Install the CADMS and Content Discovery Components following the guidelines provided.

3. Install the EMIC Components, Content Distribution and WSDataStore from the corresponding .msi files available at [amigo_gforge].

4. Install the Oscar OSGi implementation available at [http://amigo.gforge.inria.fr/obr/tools/index.html](http://amigo.gforge.inria.fr/obr/tools/index.html). Comment the proxy-related lines inside the `system.properties` file of Oscar (./lib path).

5. After downloading the Oscar file, unzip it and place the ECAXML.xsd file in the Oscar root directory. Afterwards, start Oscar by opening oscar.bat. (assuming the windows version). In the opening prompt enter a name for your profile, and the Oscar GUI will appear.

6. After that go to the OBR tab and enter the URL: [http://amigo.gforge.inria.fr/obr/v2/repository.xml](http://amigo.gforge.inria.fr/obr/v2/repository.xml) to download the Amigo core bundles: `amigo_ksoap_binding`, `amigo_ksoap_export`, `amigo_core`, `amigo_wsdiscovery`. Press Start All for each of the above to deploy them.

7. Finally, following the same procedure start the following bundles that are required for the PE functionality:
   a. log4j
   b. Service Binder
   c. Servlet
   d. HTTP Service (+ Amigo mods)
   e. jena-2.4
   f. context-broker-service
   g. Context Source Manager
   h. Context Helper
   i. ANS_API
   j. ANS_Jess
   k. Amigo ANS
   l. Domoware UPnP Base Driver Extra 1.0.0
   m. OSGi Service
   n. Domoware UPnP Base Driver 3.0.3

Afterwards, when the aforementioned bundles are Active, install and start the AmigoContentDiscovery bundle provided by TID, following the instructions provided in the HIE installation guide. Accordingly, start the Multimedia Context Source bundle and finally the Privacy Enforcement application's bundle. Note that the user should have created the privacy_enforcement MySQL database provided in order to manage the PE rules and the user/content/privacy associations for each different ContentID of the content that is provided within the HIE application, and for each specific UserID. Additionally, all this functionality is provided through the MMC component using a web interface. For the PE Rules' management, the pe_rules.war as well as the user_content_privacy.war should have been deployed on Tomcat, providing a dynamic web interface for the setting and editing of user preferences. For this reason, apart from the MySQL service, UMPS's (WP4) FeedbackAnalyser, StaticModeler and ReasoningModule should be running and the Oscar OSGi UMPS client profile should be
active (provided by TID) in order to get the UMPS UserID, as this is the main User Management service of Amigo.

2.9.2.4 Configuration

In order to let the application work properly UPnP traffic should be allowed in the network.

Note: Windows firewall does not allow UPnP traffic by default; this option should be changed in order to use the application successfully.

2.9.2.5 Compiling

Not applicable. All packages are precompiled. However, the interested user can download the source code (Eclipse project) as well as the MySQL database creation file from the [amigo_gforge] repository for this WP6 application.
2.10 Board Game

2.10.1 Introduction

There is a growing trend in the computer gaming research community to augment traditional video games with aspects from the real world. These pervasive games combine the virtual nature of traditional video games with physical and social context, thus creating immersive gaming experiences that pervade the boundaries of virtual, physical and social domains. The Board Game is a pervasive tabletop game that provides tangible interfaces borrowing interaction techniques from traditional Board Games.

The Board Game is part of both, WP6 and WP7, but the use case scenarios differ from each other. In the home information and entertainment scenario of WP6, the Board Game is deployed within a single household, where players can play the “Caves & Creatures” game while being in the same physical space. Although this documentation of the Board Game is referred as the main documentation from within D7.4, the following sections and the Board Game Usr Guide only describes the use of the Board Game within the WP6 scenario.

Within the WP7 scenario, the Board Game experience is shared by people at distant locations. In that respective setup, at one location users can play the game by manipulating figures on a physical board, while at the second location people use a conventional GUI. Further development of the Board Game was necessary to make it fit into the scenario of the extended Amigo home environment. Therefore the documentation of the Board Game within the final deliverable of WP7 (D7.4) focuses on the WP7-related issues only.

2.10.1.1 Provider

Fraunhofer SIT,

VTT (3D gesture device integration)

2.10.1.2 Overview

The Board Game is a hybrid board game that uses ambient intelligence methods for enhancing the experience of a traditional role playing game. A tangible interface can be controlled via physical figures and gestures, PDAs and RFID tokens. The demonstrator features a working setup of a physical board, a 3D visualization, sound output, the VTT gesture device, RFID and PDA support. The game features multi-device and multi-modality interfaces and is build upon a framework called PEGASUS, to synchronize the various input and output devices with the game play.

The game play is oriented towards the original role-playing game “Dungeons and Dragons” (D&D) that is played with pawns, dices and “magic” cards. Each pawn on the board represents one player. Tangible artifacts (RFID tokens) represent items, e.g. sword or axe can be applied to the active player using an RFID reader. The players can attack each other using weapons, whereby rolling the virtual dices determines the winner. The virtual dices are rolled by using the VTT gesture device as if one shakes a dice cup. In the same manner, the gesture device can be used as a virtual wand allowing to apply magic spells.

Along the physical board that was built upon an electronic chess board, the look and feel of the Board Game is mainly achieved by the use of public and private displays. One “public display” reflects the setting of the pawns on the physical board by displaying avatars in a 3D visualization. Each avatar can carry items, e.g. a weapon. 3D animations were inspired by the famous chess game “Battle Chess” known as the first chess game that shows explicit combat action between the pawns. PDAs are used as “private displays” to show the properties of each player, e.g. his health status, movement points, collected items and available magic spells.
2.10.1.3 Components

The Board Game application is composed of several Components:

- The electronic chess board including the pawns. The board is connected via USB to a PC running the Board Game application and showing the public 3D display
- A PDA running a java midlet to serve as “private display”
- The VTT gesture device “soap box” and the gesture server. The controller is connected via RS232 to the PC’s serial port.
- A RFID reader that is also connected via USB to the PC.
- The Board Game Amigo service. The service wraps and forwards the state messages from Palantir to the Board Game Demonstrator and vice versa.

2.10.1.4 Development status

A fully working version is available. Development has finished at a level, were end-users can experience the Board Game with it’s specific interfaces from two distant locations. At one location the physical board is set-up and at the other location only the 3D visualization is used to interact with other players. The set of game rules allows to move pawns on the board or from the 3D visualization, use weapons and dices, apply magic spells etc. But the game play doesn’t define a goal that would lead to an end or makes someone win.

2.10.1.5 Intended audience

Amigo consortium, end-users.

2.10.1.6 License

The Board Game software is licensed under GPLv2. Drivers and applications required to run the hardware components, such as PDA, electronic chess board and RFID drivers as well as the JRE are subject to the respective manufacturer of these components.

2.10.1.7 Language

The Board Game application is developed in C++. The Amigo service integrating the Board Game is developed using the Java and the Amigo OSGI runtime.

2.10.1.8 Environment (set-up) info needed if you want to run this sw (service)

2.10.1.8.1 Hardware

- PC with at least Pentium 4, 3GHz, 1GB ram with a DirectX9-capable graphics card, sound card, 4 USB ports (USB hub can be used) and 1 serial port
- The hardware components listed in the above section “components”

2.10.1.8.2 Software

- Windows XP SP2
- Java 1.5
- The Board Game application

2.10.1.9 Platform

The Amigo OSGi based runtime environment is needed.
2.10.1.10  Tools
For development of the Board Game, MS Visual Studio 2003 is recommended. For development of the Board Game Amigo service, a Java IDE, like Eclipse or something similar is recommended.

2.10.1.11  Files
The source code for the Board Game and Amigo service is hosted in the gforge repository:

[Amigo] / WP6 / Boardgame

2.10.1.12  Documents
An additional documentation of the Board Game within the scenario of WP7 is part of the respective deliverable D7.4. The configuration and setup procedure for the Board Game is described in the document TechnicalDescription.doc, available together with the development project on the gforge source code repository at:

[Amigo]/WP6/Boardgame/TechnicalDescription.doc

A document containing the full description of the developed PEGASUS framework is available at the same location:

[Amigo]/WP6/Boardgame/PEGASUS_manual.doc

2.10.1.13  Bugs
The public display may crash due to the version of the 3D engine used. But as the main focus was to develop a prototype for hybrid gaming build upon AMIGO and the PEGASUS framework the very first running version of the 3D visualization used a very early version of the “Irrlicht engine” that was assumed to suffice our needs. Unfortunately an adaption to the latest stable version of Irrlicht would require a total reimplementation of the 3D visualization as the interfaces have changed significantly.

2.10.1.14  Patches
N/A
3 User manuals

3.1 Home Agenda

3.1.1 Introduction

This section thoroughly describes how the Home Agenda application can be used in order to accomplish the needs of the user. It is also included a deeply description of all the problems that can arise during its usage, as well as a few images showing these functionalities, in order to ease the comprehension of the application.

3.1.2 Page structure

All the pages follow the same structure, allowing the user to have a quick access to the main functionalities of the application. From all the pages you can access any of the other applications of the HIE project. This is achieved thanks to the 4 links situated in the bottom of every page of My News. This way we can go directly to My Agenda, to get information from the user’s agenda, to My News, to personalized news, My Objects, to get information about the user’s objects and the rules for using them, or to My Accounts, to obtain information of the user’s bills.

On the top of the page, at the left corner, the AMIGO logo will directly forward to the home page (see 3.6.3). At the right corner, we can see the pictures of the users who are present in the room in a certain moment. The user who is actually using the application is considered the main user and his/her picture will be displayed in color, while the pictures of the rest of the users present in the room will be displayed in black and white. The pictures of the users who are not in the room will not be displayed.

3.1.2.1 Navigation calendar

In the center of the page, on the left side there is a small navigation calendar. This small calendar is totally independent from the main view. The user can go through the months without altering the current view. The navigation is done by clicking in the arrow-tabs situated in the upper corners of the chart. The current day is shown in blue and the selected day in green. When the user clicks in a concrete day, the main view changes to “Day” view and the day selected by the user in the navigation calendar is shown in the central part of the page with its correspondent information.

3.1.2.2 Events chart

Under the navigation calendar, there is a chart that shows all the users who belong to the family and 2 columns with checkboxes. By the checkboxes the main user can decide which type of events should be displayed in the application. Public events can always be displayed, but private events can only be shown when the owner of the event is in the room.

3.1.2.3 Views header

On the right side, also in the center, there is a header with different functionalities. Starting from the left, the first two tabs allow the user to go back or forward depending on the view in which the user is. For example, in the day view, these tabs allow the user to go to the previous day or to the next one. Then the tab “Today” allow the user to go directly to the day view of the current day, at the same time that the date is shown next to the tab. The last 3 tabs in this header are “Day”, “Week” and “Month” are to change the view in the application.
These are the basic parts of the structure of the page, the center part of the page will change depending on the actions of the user, and the correspondent information will be loaded in this section. In the following figure 1, it is shown everything that has been described in the above paragraphs.

3.1.3 Views

3.1.3.1 Day view

The main page shown when entering the application is the Day view with the current day. All the events for that day are shown in the correspondent hour and under the header with the tabs, it is displayed the current day of the week. Next figure 2 is an example.
3.1.3.2 Week view

To go to the rest of the views the user has to click in the correspondent tabs in the header. Therefore, clicking in the “Week” tab the user can see the seven days of the current week with all the events for those days. Figure 3 is an example of the week view.

![Week view with its events](image)

3.1.3.3 Month view

To access this view the user has to click in the “Month” tab, and the current month will be shown. The month view in shown in the Figure 4.

In all of the view the events are shown in different colors depending on which user is the owner of that event. The users and their colors are displayed in the chart in the left side, which has already been described.
3.1.4 **Create an event**

For the views “Day” and “Week”, to create an event the user has to click in the hour of the day desired, and for the “Month” view, the user has to click directly in the day. This action shows a page where the user has to introduce the details for the event that is going to be created. In Figure 5, it is shown the formulary that the user should fill in, in order to create the event.

![Figure 8: Month view with its events](image)

![Figure 9: Formulary to create an event](image)
3.1.5 **Show the details of an event**

To get the details of a certain event, the user has to click in the event. After that, the details for that event are shown in the central part of the page.

![Home Information](image)

*Figure 10: Details of an event*

3.1.6 **Delete an event**

To delete an event the user has to click on the target event. The page with the details of that event that appears contains a link “Delete Event”. By clicking this link the selected event will be deleted from the application and the current view in which the user was will be shown.
3.2 Monitoring Manager

3.2.1 Introduction

The goal of the Monitoring Manager application is to monitor entities such as objects and people inside the home environment. Typically, such an application acquires context information of entities from physical sensors, check monitoring criteria, and notify users according to predefined preferences. Namely, the Object Reminder Application prevents users from forgetting objects required for activities planned in their agenda. To achieve this task, objects carried by users are monitored and compared with objects associated to agenda activities. When a user goes through the home entrance and an object has been forgotten, the user is notified. Reminder rules describe objects required for a given activity of the user agenda. Rules are subscribed when the user comes back home and concerns objects required for next activities planned until the user comes back home again.

The reminder.properties file gathers environment parameters. It has to be located in the lib directory of Oscar.

### Reminder Rule Editor

Source: Amigo Gforge repository / WP6 / MonitoringManager / ObjectReminderEditor

3.2.2.1 Manage rules

Once the Amigo user has been identified, the default page called Manage Rules is loaded (Figure 11). It gives the list of reminder rules previously created by the user. For each entity, this list shows the associated activity components in the home agenda. The third column gives the life time of the rule, also called occurrence. The fourth column gives the priority of the rule. Finally, each reminder rule can be edited or deleted through this page.
3.2.2.2 Add rules

The user creates reminder rules by clicking on the Add a Rule link available on the My Rules section. Adding a rule consists of filling the form shown in Figure 12. The user first specifies one or several event templates. Events consist of 4 types: purpose (what), location (where), attendees (who) and transport (how). Then, objects required for these event components can be selected. Finally, the occurrence and the priority of the reminder rule are selected.

![Object Reminder Editor](image)

**Figure 12: Adding a rule**

3.2.2.3 Edit rules

Rules can be updated from the Manage Rules page. A form similar to the one used to add rules is used to update reminder rules as shown in Figure 13.

![Object Reminder Editor](image)

**Figure 13: Editing a rule**
3.2.2.4 Manage objects

Entities required in user events are enumerated in the Manage objects page. They can be deleted. The suppression of an object triggers the suppression of all reminder rules referring this object. Additional entities are added by clicking on the Add an object link.

![Figure 14: Managing entities](image)

3.2.2.5 Add objects

Objects are added by specifying a name and selecting a picture as shown in Figure 15.

![Figure 15: Adding entities](image)
3.2.3 The Object Reminder Application

Source: Amigo Gforge repository / WP6 / MonitoringManager / ApplicationCore / reminder

Bundle: Phoenix - Reminder Application (reminder.jar)

Required bundles:
- Bundle Repository
- Servlet
- HTTP Service (+ Amigo mods)
- log4j
- Service Binder
- amigo_core
- amigo_ksoap_binding
- amigo_ksoap_export
- amigo_wsdiscovery
- jena-2.4
- Context Helper
- Context Source Manager
- context-broker-service
- ANS_API
- ANS_Jess
- Amigo ANS
- Phoenix - Monitoring Manager API
- Phoenix - Reminder Application

Goal

The Object Reminder Application loads reminder rules and sends notifications.

To deploy the Reminder Application GUI:
- Copy the reminder.properties file in the Oscar lib directory (modify it if necessary).
- Run the web server containing the Object Reminder Editor.
- Run Oscar and all required bundles but the Object Reminder Application.
- Run the UserLocation Context Source.
- Start the Object Reminder Application bundle.
- Start notifier bundles (screen or pda, see further).
- Start the Object Reminder GUI bundle.

Further details

The Object Reminder Application subscribes and unsubscribes rules from the ANS according to (1) the date and time, (2) the home agenda file and (3) user reminder files loaded by the Object Reminder GUI.

The name of the notification zones as sent by the Context Source must be defined in the reminder.properties file. 2 notification zones have to be specified: an outside zone and an
inside zone. The Home Agenda file (events.owl) location is also specified in the reminder.properties file.

3.2.4 The Object Reminder GUI

Source: Amigo Gforge repository / WP6 / MonitoringManager / ApplicationCore / monitoringmanger_gui

Bundle: Object Reminder GUI (monitoringmanager_gui.jar)

Required bundles:
- Bundle Repository
- Servlet
- HTTP Service (+ Amigo mods)
- log4j
- Service Binder
- amigo_core
- amigo_ksoap_binding
- amigo_ksoap_export
- amigo_wsdiscovery
- Phoenix - Monitoring Manager API
- Phoenix - Monitoring Manager GUI

Goal
The Reminder Application GUI has two goals; first, it enables testing the Object Reminder Application and second, it loads Object Reminder Rule file into the Object Reminder Application.

To deploy the Reminder Application GUI:
- Copy the reminder.properties file in the Oscar lib directory (modify it to specify the web server URL).
- Run the Object Reminder Application (on another OSGi platform if required).
- Enable directory browsing in the web server (set listings to true in web.xml for Tomcat).
- Run the web server containing the Object Reminder Editor.
- Run Oscar and required bundles.
- Check that the reminder files have been correctly loaded and set datetime to begin testing.

Further details
The Object Reminder GUI displays the list of users. This list is updated according to the rules directory of the Object Reminder Editor. Actually, if a new reminder file is created in the editor, the Object Reminder GUI displays the name of the user and loads the related reminder file into the Object Reminder Application.

By default, the Object Reminder Application uses the actual date and time. However, the date and time can be set in the Object Reminder GUI for testing purpose. If the date and
time are set for the first time, the Object Reminder Application is automatically reset to take into account the new date. Then, the date and time have to be set to keep testing.

The Object Reminder Application can be reset to start a new test phase (the date and time currently specified are considered for this new test phase).

![Figure 16: The Object Reminder GUI](image)

### 3.2.5 The Screen Notifier

**Source:** Amigo Gforge repository / WP6 / MonitoringManager / ApplicationCore / notifier

**Bundle:** Phoenix – Notifier For Computer (notifier.jar)

**Required bundles:**
- Bundle Repository
- Servlet
- HTTP Service (+ Amigo mods)
- log4j
- Service Binder
- amigo_core
- amigo_ksoap_binding
- amigo_ksoap_export
- amigo_wsdiscove
- Phoenix - Monitoring Manager API
- Phoenix - Notifier For Computer

**Hardware requirement**

A computer with the OSGi platform.
Goal

The Screen Notifier displays notifications from the Object Reminder Application for all users.

To deploy the Screen Notifier:

• Copy the reminder.properties file in the Oscar lib directory.
• Run the web server containing the Object Reminder Editor
• Run Oscar and required bundles

Further details

The Screen Notifier displays the list of notifications in priority order: red for high priority, orange for medium priority and yellow for low priority. Each notification is illustrated by a picture taken from the web server and can be removed by clicking on the remove button. Once all notifications have been removed, the Screen Notifier is still ready to display notifications.

Figure 17: The Screen Notifier

3.2.6 The PDA Notifier

Source: Amigo Gforge repository / WP6 / MonitoringManager / Notifier_PDA

Bundle: Phoenix – Notifier For PDA (notifier_pda.jar)

Required bundles:

- Bundle Repository
- log4j
- Service Binder
- amigo_core
- amigo_ksoap_binding
- amigo_ksoap_export
- amigo_wsdiscovery
- HTTP Service
- Servlet
- Phoenix - Notifier for PDA API
- Phoenix - Notifier for PDA

Software requirement
  JVM J9
  OSGi for PDA

Hardware requirement

Goal
  The PDA Notifier displays notifications from the Object Reminder Application for a particular user on a PDA.

To deploy the Screen Notifier:
  • Copy the reminder.properties file in the Oscar lib directory.
  • Run the web server containing the Object Reminder Editor
  • Run Oscar and required bundles

Further details
  The PDA Notifier displays the list of notifications in priority order: red for high priority, orange for medium priority and yellow for low priority. Each notification is illustrated by a picture taken from the web server and can be removed by clicking on the corresponding notification. Once all notifications have been removed, the PDA Notifier is still ready to display notifications.

3.2.7 Context Source requirements
  As the ANS does not handle spaces in objects and people names, they must be specified without space (spaces have to be replaced by "_"). If the object "My Bicycle" was entered into the Object Reminder Editor, the Context Source has to send "My_Bicycle" when naming this object.

The Context Source must send the following event pattern:

```
<?xml version="1.0"?>
<sparql xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:xs="http://www.w3.org/2001/XMLSchema#"
xmlns="http://www.w3.org/2005/sparql-results#">
  <head>
    <variable name="x"/>
    <variable name="y"/>
  </head>
  <results ordered="false" distinct="false">
    <result>
      <binding name="x">
        <literal>My_Laptop</literal>
      </binding>
      <binding name="y">
        <literal>in</literal>
      </binding>
    </result>
  </results>
</sparql>
```
The RDF description is as follows:

```
<rdf:RDF
  xmlns="http://amigo.gforge.inria.fr/owl/ContextTransport.owl#"
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
  xml:base="http://amigo.gforge.inria.fr/owl/ContextTransport.owl">
  <ContextSourceRegistration>
    <timeliness>current</timeliness>
    <contextType>UserLocation</contextType>
  </ContextSourceRegistration>
</rdf:RDF>
```
3.3 My News

3.3.1 Introduction

This section thoroughly describes how the My News application can be used in order to accomplish the needs of the user. It is also included a deeply description of all the problems that can arise during its employment, as well as a few images showing these functionalities, in order to ease the comprehension of the application.

As explained before, there are three working modes in the application and in each of them the user can perform different actions. There is a subsection in this tutorial explaining the correspondent functionalities for each mode. To go from one mode to another there is a link in the right part of the header which allows the user to navigate through the different modes, the newspaper, the classic view by feeds and the classic view by topics.

3.3.2 Page structure

All the pages follow the same structure, allowing the user to have a quick access to the main functionalities of the application. From all the pages you can access any of the other applications of the HIE project. This is achieved thanks to the 4 links situated in the bottom of every page of My News. This way we can go directly to My Agenda, to get information from the user’s agenda, to My Messages, to read user’s messages or to My Accounts, to obtain information of the user’s bills.

The header is separated in two parts. The left part is the AMIGO logo, through which we can go directly to the home page of the HIE, and the right part which contains different sections. These sections are from left to right: the application we are using and the current page we are in, the pictures of the users who are in the house at that moment and a navigation link to be able to access the different working modes. This link varies depending on the view we are situated in.

Thanks to this basic structure for all the applications, it is much easier to integrate new applications to the HIE demonstrator. It is also useful because, this way, the user is located all the time, allowing a fast and intuitive navigation through the application. The following screenshot in the next figure shows the structure described before, explaining the meaning of each element in the header and footer.

![Figure 18: My News header and footer](image)

3.3.3 Digital newspaper mode

The entry point to the application is the digital newspaper, where twelve pieces of news are recommended by the application. This recommendation is done by consulting the UMPS, obtaining the user preferences and selecting the three preferences with the highest score. After selecting the three topics, the application gets three o four pieces of news about those topics and shows them in a newspaper format.
In the next figure it is shown the digital newspaper view with the user’s pictures in the header. From this view the user can go to the classic view by clicking in the link situated in the header “Classic View”.

![Home Information](image)

**Figure 19: My Newspaper**

This view does not show the complete pieces of news because of space and design issues. However, if the user is interested in obtaining more information about a concrete piece of news, it can be done by clicking in the title of the desired piece of news. This action loads the external page with the extended information within the application. This is shown in the figure, where the external page is already loaded.

Besides from showing the extra information, the user can also go back to the original newspaper by clicking in the link under the external page that says “Back to newspaper”. It is also possible to go directly to the “Classic View” by clicking the link in the header.
3.3.4 Classic view by feeds

To access this working mode from the newspaper, the user has to click in the link situated in the header named “Classic View”. In the same way, in the Classic View this link is replaced with a link called “My Newspaper”. By clicking it the user can go back to the newspaper.

The first time that the user enters the Classic view by feeds mode, several pieces of news are shown from a predefined RSS feed. After that, the user can select the one desired. In this mode there are two separated parts in the page, the list of RSS feeds situated in the left side and the middle part of the page containing the news. The list of the feeds, which is situated in the left side, is stored in the application and it can be modified depending upon the user actions.

To obtain the news, the user has to select a source and click in it in order to get some news from that source. Extended information is available at any time by clicking the title of the piece of news desired. In the next figure we can see the news obtained from one of the feeds included in the list, “Washington Post”: 
A piece of news consists of: a title and a description, a link called “Auto-training”, which displays a drop-down menu with all the available topics, and an image that represents the topic of that piece of news recognized by the application. By clicking the link “Auto-train” the drop-down menu is shown, this menu is used to auto-train the application and its process is explained in section 3.8 of this tutorial. The image representing the topic is a link that allows the user to go directly to the “Classic view by topics” mode. When accessing this mode, the application generates news about the topic represented in the image previously selected and they are shown to the user. This way, if one of the news was about Education and the user clicks on the Education image situated on the right, the application goes to the “Classic view by topics” mode and shows news about Education.

### 3.3.5 Introduce a new RSS feed

There are two text fields at the end of the list of the feeds, the URL field and the Name field of a source. Through these fields the user can introduce new feeds which will be stored, afterwards, in the application for next queries of news. The action will take place by clicking the link situated under the text fields “Add new feed”.

When a user introduces the URL and the name for a new feed the application checks if it is a valid URL. In case it is invalid, an error message is shown “INVALID URL” and the feed will not be stored. If the URL is correct, the new feed will stored in the application and it will be added to the list of feeds. Finally, the content of that new feed will be shown to the user.
We can see in the next figure what happens if the user introduces a wrong URL:

![Home Information](image)

**Figure 22: After introducing a wrong URL**

### 3.3.6 Edit feeds

As well as introducing new feeds, it is also possible to edit the existing feeds. The first time using the application, a predefined list of feeds is loaded, but after that it can be modified by the user, and also saved for the next times the user uses the application.

This can be done by clicking the link “Edit feeds”, which is situated in the upper part of the list of the feeds. When the user clicks this link a red cross appears for each existing source in the list. Then, the user can delete any RSS feed by clicking the cross. This action is permanent and it will erase the URL from the application forever. The “Edit feeds” link is replaced for a “Close editing” link, which can be used by the user if the edition is finished.

An example of the edition of feeds is shown in the next figure:
3.3.7 Classic view by topics

This mode is really similar to the one explained before. The main difference is that in this one the list situated in the left side contains the seventeen topics contained in the news ontology of My News. In the same way as before, in the middle part of the page the application will show the news obtained after selecting a topic from the list. Each piece of news also has the drop-down menu and an image representing the topic.

Extended information is available at any time by clicking the title of the piece of news desired. In the next figure we have selected the “Sports” topic and the news obtained are shown in the middle part of the page.
3.3.8 **Auto-training**

This functionality allows the user to be able to train the application following its own opinion. In each of the modes, the application shows, for each piece of news, an image representing the topic obtained by the recognition process. However, this does not mean that the topic obtained is the correct or the most intuitive one. Therefore, if the user thinks that the application has got an incorrect topic, the user can press “Auto-training” and the correct topic can be chosen from the drop-down menu. Once it is selected the user has to click in the “CHANGE” link and this will trigger the action. If the auto-training is completed, the drop-down menu can be hidden by clicking in “Hide auto-training”.

What the action does is the following: the words contained in that piece of news are added to the keyword file associated with the topic selected by the user. Since this process will be repeated several times, these words introduced will become more important in the keyword file and, when found in different pieces of news, the application will recognized the correct topic.

Next figure shows the drop-down menu of one of the news:
### 3.3.9 Extended information

In both the “Classic view by feeds” and “Classic view by topics” mode, the user can click in the title of the piece of news wanted. This will load the original external page from which the news was obtained, and this way, get more information related to that piece of news.

From this page that contains the loaded external page, the user can go back to the previous news obtained by clicking the link in the bottom part “Back to News”. It is also possible to go directly to the newspaper by clicking the link situated in the header “My Newspaper”.

An example is shown in the next figure:
Figure 26: External site included in classic view by topics mode
3.4 Messaging Board

3.4.1 Configuration

1. Register the BuildSetnetse.dll located in C:\Amigo\lib. From command line enter:
   regsvr32 C:\Amigo\lib\BuildSentense.dll.

2. Configure VoiceIO service. The options of VoiceIO service are stored in
   C:\Amigo\VoiceIO\VoiceIO.cfg. The most important are:
   - **portNumber**: the port the service will be assigned to (default 9876). Be sure that there
     are no other services using this port
   - **userAdaptation**: if set to “yes” speech interface will try to contact user modeling &
     profiling service in order to get information on preferred user’s language. In case of
     failure the **defaultLanguage** will be used.

3. Configure the MessagingBoard application. The options of MessagingBoard application
   are stored in C:\Amigo\MessagingBoard\MessagingBoard.ini.
   - **portNumber**: the port the service will be assigned to (default 8095). Be sure that there
     are no other services using this port.
   - **DBConnection**: the connection string used by the application to connect to database
     server:

     server=localhost\SQLEXPRESS;uid=speech01;pwd=speech;database=MessageDatabase

     Change the values for **server**, **uid**, **pwd**, **MessageDatabase** to match your settings.
   - **messageDuration**: the duration in seconds for the recorded messages (default 10
     secs).

4. Configure the database server. Create a new database called **MessageDatabase** with
   a tableMessages. The following SQL script describes the structure of the table and can
   be used for automatically create the table from SQL Server Management Studio

   USE [MessageDatabase]
   GO
   /*/****** Object:  Table [dbo].[Messages]    Script Date: 10/24/2007 11:19:59 ******/
   SET ANSI_NULLS ON
   GO
   SET QUOTED_IDENTIFIER ON
   GO
   CREATE TABLE [dbo].[Messages](
     [key_ID] [int] IDENTITY(1,1) NOT NULL,
     [toID] [nvarchar](300) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
     [fromID] [nvarchar](300) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
     [timeCreated] [nvarchar](50) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
     [messageType] [nvarchar](50) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
     [messageContent] [text] COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
     [status] [nvarchar](50) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
     [readtimestamp] [nvarchar](50) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL
   ) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]

   You should have a structure similar to the following:
5. Configure the UMPS. The MessagingBoard recognizes (and address by first name the following users: Maria@amigo.net, Jerry@amigo.net, Andrew@amigo.net. These users should be included in UMPS and the preferredlanguage setting should have a value (default en-US).

3.4.2 Running
1. Start the UMPS Reasoning module: run the <UMPS_dir>\ReasoningModule.exe
2. Start the VoiceIO service: run the C:\Amigo\VoiceIO\VoiceIO.exe

After initialization the service will be ready for requests in the predefined port
3. Start the MessagingBoard application/service: run the
C:\Amigo\MessagingBoard\MessagingBoard.exe

After initialization the service will be ready for requests in the predefined port
At this point you can call the Start method from any client. For demo purposes a client is included in the same application and is invoking the start method by pressing “1”. Also another client (windows based) is provided as an example of invoking the Start method by a button.

![Messaging Board Client](image)

Figure 30: Messaging Board Client

The syntax of Start method is:

```csharp
int Start(string userID)
```

A userID is required as input, on success it returns 0, on error a <0 integer plus exception messages are presented in screen.

### 3.4.3 Additions

The default application language is English (en-US). To add additional languages must:

- create the relevant folders under `C:\Amigo\MessagingBoard\ApplicationResources\Grammars` and `C:\Amigo\MessagingBoard\ApplicationResources\SystemPrompts`
- Populate this directories with the files included in the equivalent en-US, modified so that they reflect the desired language
- create or modify a user to have the specific language as preferred language, or, modify in VoiceIO.ini the `defaultLanguage`

Supported languages:
de-DE => German, Germany
en-US => English, United States
es-ES => Spanish, Spain
fr-FR => French, France
it-IT => Italian, Italy
nl-NL => Dutch, Netherlands
el-GR => Greek, Greece
eu-EU => Basque
3.5 Percodi

3.5.1 Overview of Percodi

The Percodi demonstrator acquires and stores informational (What does a user do at a computational device?), activity (To which activities relate these interactions?), physical (Where is the user?) and social (Who is with the respective user?) context for gathering context of personal information use as well as of group information use.

3.5.2 Overview of the Percodi architecture

The Percodi demonstrator is split into a server side and client side part. The server side part consists of the Percodi server which is part of the context-histories component of the Amigo context management service. This component retrieves informational context information from Logger clients and stores them in a database. Physical context information is stored directly in the database from a Amigo Ubisense Context Source. The client side part consists of the Logger application and the DisplayContentSearch application. Both applications are explained in detail in the next section.

3.5.3 Overview of the Percodi client applications

The Percodi client applications store informational context information and retrieve context information.

For this approach there exist the following applications:

- **Logger**
  This application gathers informational context information. It support logging of emails in Outlook, local and network files, Microsoft Office documents, application and Internet Explorer usage and Windows Media Player usage. Furthermore it consists of a module called WorkingOn which allows a user to link his or her current interactions with higher-level activities (activity context).

- **DisplayContentSearch**
  This application provides a search interface for retrieving context related information depending on search criteria like user or time.
3.5.4 Percodi Logger

3.5.4.1 General usage

The Logger starts automatically when Windows starts. You can see the application in the tray icon list. A green check ✓ means that the Logger successfully connected to server and started the logging. A red check ✓ means that the Logger could not find the server. If this happens you have to reconfigure the configuration file as described in Installation and Configuration. A stop icon ✗ means that the Logger does not log.

To start and stop the server you perform a right-click the tray icon and click the specific buttons.

![Figure 31: Start Percodi](image)

To change the Logger behavior you perform a right-click on the tray icon and go to “Settings”.

![Figure 32: Change Logger behaviour](image)

Under the first tab you can customize the update rate behavior of the Logger.
A small amount means that the Logger sends more often small data packages via the network and the context information are always up to date. A grand amount means that the Logger sends rarely big data packages but the context information are not up to date. Further you can enable or disable automatic starting of the Logger under “Logger settings” (see Figure 33).

### 3.5.4.2 Logging components

The Logger gives you plenty options which user interactions you want to log. At the beginning all installed logging components are enabled. To disable a logging component you perform a right-click on the tray icon and go to “Settings”. In the settings form you can see the current enabled settings under “Logger settings”.

![Figure 33: Customize Logger behaviour](image)

![Figure 34: Logger settings](image)
To disable a specific component you unmark its checkbox. Some logging components which are installed via a plug-in have to be manually disabled in the host application. For Word, Excel and PowerPoint you can find a new toolbar which allows you to enable and disable the logging by clicking the button.

![Looper toolbar in Microsoft Word](image)

*Figure 35: Looper toolbar in Microsoft Word*

For Windows Media Player you go to Extras -> Plug-Ins -> Percodi. An arrow means that the plug-in is enabled, no arrow means disabled.

![Percodi in Windows Media Player](image)

*Figure 36: Percodi in Windows Media Player*

For Outlook there is no way to disable its plug-in after the installation of it. For Adobe Acrobat there exists no way to disable its plug-in, too.

### 3.5.5 DisplayContentSearch

The Percodi query user interface is shown below. Media types, users, search terms, a time interval and more can be chosen by the user to find the appropriate place in his personal context diary.
Below the actual Percodi interactive personal context diary user interface is shown. The various media and information used are shown on a timeline and can be re-accessed by a double-click on the respective item. Zooming functionality allows users to comfortably handle time intervals of up to one month on an SXGA+ screen.

The Annotations section contains personal text information added by the respective user. The Tasks section represents a facility to tag certain activities in Percodi. Finally, the sensor section shows where the user has been throughout a day, if has worn a ubisense tag.
Figure 38: Percodi search results
3.6 Media Manager Core

3.6.1 Introduction

This section thoroughly describes how the Media Manager Core application can be used in order to accomplish the needs of the user together with a deeply description of all the problems that can arise during its usage.

3.6.2 Page structure

All the pages follow the same structure, allowing the user to have a fast access to the main functionalities of the application. At the bottom of the page, there are four links that directly list the content available organized by categories. This way, clicking on ‘My Videos’ all the videos present at home will be listed, and thus ‘My Music’, ‘My Pictures’ and ‘My Ext Servers’ links will display all content available for servers outside home, which can be purchased by the user. In this case, the next page that will be shown is explained on detail in section 3.6.4.

On the top of the page, at the left corner, the AMIGO logo will directly forward to the home information and entertainment entry page. At the right corner, there are different links: ‘Browse Devices’, ‘Activate Gesture Recognition’, ‘My Sessions’, ‘Home’ y ‘MyTV’. The first one shows the devices connected to the home network in two categories: Servers and Renderers. This part is described in section 3.6.13. The second one will activate the gesture recognition function, allowing the user to interact with the application using the 3D Gesture Soap Box. Further details can be found in section 3.6.16. My Sessions will take you to a page which will display all the current multimedia sessions at home. The Home link will take you to mmc start page. Below the ‘Media Manager Core’ a text will be displayed to inform the user about which is the current page. On the right side of the AMIGO logo, a message appears every time an action from the 3D Gesture Soap Box is received. This way we allow users to know whether their actions are being recognized by the Media Manager Core.

On the top right side of the page the user enjoying the application is displayed in a color picture whereas other users present at home are displayed in black and white pictures.

![Figure 39: MMC basic structure](image)
3.6.3 **Home page**

The main page of the application is the search engine, where the user can specify several parameters in order to find the content he/she is looking for. A drop down list used to limit the results to a content item of some type. There are four possible values for this list: All Content, Video, Music and Pictures. Thus, depending on the type of content we are looking for, different properties will be shown. The available properties organized by kind of content are listed in [Error! Reference source not found.](#). A text box that allows the user to indicate which text the items should contain in any of the properties selected. A button that submits the form with the data selected and will display a page with the results of the search.

<table>
<thead>
<tr>
<th>Content</th>
<th>Title</th>
<th>Date</th>
<th>Description</th>
<th>Director</th>
<th>Actor</th>
<th>Genre</th>
<th>Artist</th>
<th>Album</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Content</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Music</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Picture</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

*Figure 40: Content properties*

3.6.4 **Content available**

Once the search form has been submitted, a page with the results is displayed. This page is very intuitive and gives an idea about all the media available at home that matches our conditions. A table lists the content available showing the title and an icon representing the type of every item ordered by type of content. A preview of the content is also available; this preview displays a thumbnail of a picture, movie cover or album cover if available, depending on the type of the content. However, this could be not clear enough in some cases, therefore by clicking on the more info link of an item, a full description is presented in 3.6.7. This part is described in section 3.6.9. As soon as we decide which content we want to watch, we just select it and we will be redirected to the page where we can choose the renderer to use. The Figure 7 shows the result of a search with some videos, music and picture items on it.
3.6.5 Select renderer

After selecting a content that matches our wishes, we should select a device where we want to play it. The most remarkable information regarding the selected content is displayed on the left table called “Content Description”. Some properties like the title and type of media together with some specific class properties are displayed. We may want to modify some of this properties, for that reason an “Edit Data” link is present that lead as to a page where we can alter them. This part is explained in section 3.6.8. Moreover, a "More Info" link is available in order to give further details about the selected content. This part is explained in section 3.6.9.

On the right table there is a list with all available renderers at home, showing its friendly name. However, this could be not clear enough in some cases, therefore by clicking on a renderer name a full description is presented. As soon as we decide which renderer we want to use, we just select it and we will be redirected to the page where we can play the content. Nevertheless, we might want to select another piece of content from our previous search. We can achieve this by clicking on the “Back to Results” link that take as to the preceding page.
The figure 43 shows this page with a song of “Robbie Williams” selected and some available renderers.

![Figure 43: MMC select renderer](image)

### 3.6.6 Play the content

When a content and a renderer are selected we are ready to display the content. The most remarkable information regarding the selected renderer is displayed on the right table called “Renderer Information”. Some properties like the friendly name, and manufacturer plus some playing options are displayed. We may want to modify some of this properties, for that reason an “Edit Data” link is present that lead as to a page where we can alter them. Section 3.6.11 of this tutorial describes this part in detail.

On the left table there is a list with most remarkable information regarding the selected content. These options will vary depending on the content type. Thus, in the case of an Image item, only a play button will be shown that will render the picture to the device selected. In the case of Video or Audio items, three buttons are displayed: a play, pause and stop buttons that will play, pause or stop the audio or video selected. In this case two more properties are displayed on this table, the “status” that informs us about the current situation of the content, and the “Play Time” that reports the amount of time elapsed from the beginning of the video/audio. The status values plus a description of its meaning can be found at [Error! Reference source not found.](#)

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ready</td>
<td>The content is ready to be rendered</td>
</tr>
<tr>
<td>Transitioning</td>
<td>Setting up transfer</td>
</tr>
<tr>
<td>Playing</td>
<td>The content is being placed</td>
</tr>
<tr>
<td>Paused</td>
<td>The content is paused</td>
</tr>
<tr>
<td>Stopped</td>
<td>The content is stopped</td>
</tr>
</tbody>
</table>

![Figure 44: Playback status](image)

Nevertheless, we might want to select another renderer. We can achieve this by clicking on the “Select Another Renderer” link that take us to the preceding page. Figure 5 shows this page with a song being played and a renderer selected.
3.6.7 **Modify a content item data**

If we decide to modify a content item data, all the properties regarding to the content item selected are displayed and we can edit them just complying with the following rules.

- Title can not be empty
- Date entered should be in the following format: “yyyy-mm-dd” (where y stands for year, m for month and d for day).
- The rest of the fields must contain an arbitrary number of allowed characters between 0 and 50 in the case of textboxes and between 0 and 300 in the case of text areas. If we want to delete the contents of a property we can do it by leaving its field empty.
- Allowed characters are: letters, numbers, underscore and hyphen.

Once we have finished the edition of the content, we can save it by clicking on the “Save” button or we may not want to make any changes, then we can go back by using the “Cancel” button. The “Recommend” button is used to help the user in introducing information related to the content that it may be unknown. This way, the user can have store information related to content even if he/she doesn’t know it.

If the new information entered doesn’t comply with the rules explained before, a message will appear reporting the problems and allowing the user to make changes in order to make a successful edition of the content properties. In the Figure 10 a change in the film “Little Miss Sunshine” is displayed.

By default, only some properties and no semantic data is shown. Nevertheless, this information can be modified as well by clicking on the “Advanced Properties” and “Semantic” links. In the same way, we can go back to the simple view by click on “Less Properties” and “Semantic” links once again.
Figure 46: MMC modify content

3.6.8 **Recommend content data**

This page is used to discover information related to an item and present the results to the user so that he/she can modify the description of a piece of content in a seamless way.
When this page is shown, all the item properties that can be discovered by the application are filled and displayed to the user. As there can be many different results matching one content item, 2 navigation buttons are provided at the bottom of the page to let the user go to the next or previous potential result and a counter is shown in order to keep the user informed about the current item description.

Furthermore, close to each property field a ‘previous value’ button is placed in order to let the user recover the previous stored value. This way, the user can combine new values provided by the application with the stored ones. When we finished editing the content we can save it by clicking on the Save button or we may not want to make any changes, then we can go back by using the Cancel button. The Figure 47: MMC recommend content shows the process of modifying the “Transformers” movie through the recommendation made by the application.

![Figure 47: MMC recommend content](image)

**3.6.9 Content description**

This page displays all the information available of a content item. It is accessible from the “Content Available” page (see 3.6.4) since a user might be interested in see further details about a content item before selecting it, and from the “Select Renderer” page (see 3.6.5) because the user may want to get some information about the item he/she is about to renderer. Therefore there are two links, one to go back to the content available in order to let
the user select another item, and a second one to confirm the choice and go to the next step that is to determine where the item is going to be play.

Figure 48 shows the content description of Pirates of the Caribbean film where we can see the attached properties:

![Figure 48: MMC content description](image)

<table>
<thead>
<tr>
<th>Album Art Url</th>
<th>Content Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Pirates of the Caribbean</td>
</tr>
<tr>
<td>Content Type</td>
<td></td>
</tr>
<tr>
<td>UPnP Class</td>
<td>object.item.video.item.movie</td>
</tr>
<tr>
<td>Actors</td>
<td>Johnny Depp, Geoffrey Rush, Orlando Bloom, Keira Knightley, Jack Davenport</td>
</tr>
<tr>
<td>Director</td>
<td>Gore Verbinski</td>
</tr>
<tr>
<td>Genre</td>
<td>Action, Adventure</td>
</tr>
<tr>
<td>Rating</td>
<td>PG-13 (Parental Guidance Suggested)</td>
</tr>
<tr>
<td>Publisher</td>
<td>Walt Disney Pictures</td>
</tr>
</tbody>
</table>

3.6.10 **Multimedia sessions**

All the multimedia sessions available at home can be seen on “My Sessions” page. This option allows users to pause, stop and resume session from whenever we want. All the required information to identify a session is Available, which includes Renderer name, Content Title and status.

Figure 9 shows some contents in different status at home

![Figure 49: MMC content description](image)
3.6.11 **Modify a renderer data**

If we decide to modify a renderer, all the properties regarding to it are displayed and we can edit them just complying with the following rules.

- The friendly name can not be empty
- All the fields must contain an arbitrary number of allowed characters between 0 and 100.
- Allowed characters are: letters, numbers, underscore and hyphen.
- The following properties can not be changed: capabilities, online, UPnP device, rendeID and UDN.

When we have finished the edition of the renderer data, we can save it by clicking on the “Save” button or we may not want to make any changes, in that case we can go back by using the “Cancel” button. If the new information entered doesn’t comply with the rules listed before, a message will appear reporting the problems and allowing the user to make changes in order to make a successful edition of the renderers properties.

In Figure 50 a change in an Intel UPnP AV MediaRenderer is displayed.

![Figure 50: MMC modify renderer](image)

3.6.12 **Modify a renderer profile**

The renderer profile can be modified as well. By default, MMC is able to determine the capabilities of each renderer, like the media type that it can render. However, the user can specify some features about the renderer profile, like which screen resolution is the best, how many audio channels it has or even the most appropriate bitrate for movies.

In Figure 51 a change in an Intel UPnP AV MediaRenderer is displayed.
3.6.13 Devices list

The devices list displays all the devices (software or hardware based) available at home and organize them in two categories: servers and renderers. Server stands for an UPnP AV MediaServer, a device that provides AV content to other UPnP devices on the home network. In this way, the MediaServer can handle any specific type of media, any data format, and transfer protocol. Renderer stands for UPnP AV MediaRenderer, a device capable of rendering AV content from the home network.

On the left side there is a list with all available servers at home, showing its friendly name and manufacturer. On the right side the list shows the online renderers displaying the friendly name and manufacturer as well. In addition we can see the renderers that are offline by clicking the “Show offline renderers” checkbox. In this case the information offered is complemented with the status of the renderer, which is either online or offline, plus an option to delete a renderer. If we want to switch back to online renderers screen, we just uncheck the “Show offline renderers”. In order to get more information about a device we can click on it, and all its available information will be displayed on a new screen. Figure 52 shows a picture of this page.
3.6.14 **Server description**

The server description page displays all available information about the selected server. Clicking on “Select Another Device” will lead us the previous page where all the servers and renderers are listed in order to view another device description. shows a typical server description.

![Figure 53: MMC server description](image)

<table>
<thead>
<tr>
<th>Server Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Server Id</strong></td>
</tr>
<tr>
<td><strong>Name</strong></td>
</tr>
<tr>
<td><strong>Manufacturer</strong></td>
</tr>
<tr>
<td><strong>Model Url</strong></td>
</tr>
<tr>
<td><strong>Model Description</strong></td>
</tr>
<tr>
<td><strong>Model Name</strong></td>
</tr>
<tr>
<td><strong>Model Number</strong></td>
</tr>
<tr>
<td><strong>Model Url</strong></td>
</tr>
</tbody>
</table>

3.6.15 **Renderer description**

The renderer description page displays all available information about the selected renderer. We may want to modify some of this properties, for that reason an “Edit Data” link is present that lead as to a page where we can alter them (see 3.6.12). Figure 54 shows a typical renderer description.
3.6.16 3D Interaction

The Media Manager Core application can be controlled using a 3D device called 3D Gesture Soap Box that it is a hand held device which recognizes the gestures that the user performs. By default this capability is disabled, so the normal interaction between the user and the application is the conventional user interface. To use the 3D Gesture Soap Box the user should activate it by clicking on the “Activate Gesture Recognizer” on the top left corner. When this feature is working the link text changes to “Deactivate Gesture Recognizer” and this way the user can deactivate it. The activation and deactivation of the 3D Gesture Soap Box can be done from any page and at any moment.

Once the 3D Gesture Soap Box is activated, the user can start performing movements or gestures to control the application. A list of all available gestures is shown in Error! Reference source not found.. However, the gestures recognized by the application depend on the page that the users are viewing since some of them do not have meaning in some pages.
<table>
<thead>
<tr>
<th>Gesture</th>
<th>Name</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>🔄</td>
<td>Play</td>
<td>Play a content reproduction</td>
</tr>
<tr>
<td>🔄</td>
<td>Stop</td>
<td>Stop a content reproduction</td>
</tr>
<tr>
<td>🔄</td>
<td>Pause</td>
<td>Pause a content reproduction</td>
</tr>
<tr>
<td>🔄</td>
<td>Home</td>
<td>Go to home page</td>
</tr>
<tr>
<td>🔄</td>
<td>Browse Devices</td>
<td>Go to list devices page</td>
</tr>
<tr>
<td>🔄</td>
<td>Search All</td>
<td>Search all content available at home</td>
</tr>
<tr>
<td>🔄</td>
<td>Search Music</td>
<td>Search all music available at home</td>
</tr>
<tr>
<td>🔄</td>
<td>Search Videos</td>
<td>Search all videos available at home</td>
</tr>
<tr>
<td>🔄</td>
<td>Search Pictures</td>
<td>Search all pictures available at home</td>
</tr>
<tr>
<td>🔄</td>
<td>Go Down</td>
<td>Step down one position in a table.</td>
</tr>
<tr>
<td>🔄</td>
<td>Volume Down</td>
<td>Volume down during playback</td>
</tr>
<tr>
<td>🔄</td>
<td>Go up</td>
<td>Step up one position in a table.</td>
</tr>
<tr>
<td>🔄</td>
<td>Volume Up</td>
<td>Volume Up during playback</td>
</tr>
<tr>
<td>🔄</td>
<td>Select</td>
<td>Select</td>
</tr>
<tr>
<td>🔄</td>
<td>Toggle full screen</td>
<td>Toggle full screen during playback</td>
</tr>
</tbody>
</table>

Figure 55: Available gestures

Gestures allowed in all the pages are the following ones: “Search All”, “Search Music”, “Search Videos”, “Search Pictures”, “Home” and “Browse Devices”. Therefore by performing any of these actions the application will show the right page. The use of these gestures allows the user to browse the Media Manager Core application.

In order to let the user select items in a list the “Go Down”, “Go Up” and “Select” gestures are provided. These gestures are allowed in the next pages: “Content Available” and “Select Renderer”. When the 3D Gesture Soap Box is activated, this pages show a yellow background on the item cell that are currently selected. The user can use the “Go Down” and “Go Up” to step down and up in the list. Once a user decides which content to choose, the Select action can be performed to confirm select and go to the next page. Figure 56 shows an example of the page Content Available.
Some gestures are provided to let the user handle the playback of the content: “Play”, “Pause” and “Stop”. These actions are only available on the “Play Content” page. When a user performs any of these actions the Media Manager Core application will react accordingly making the content to start, pause or stop playing.

In order to allow users to know whether their actions are being recognized by the Media Manager Core, a message appears on the right side of the AMIGO logo, every time an action from the 3D Gesture Soap Box is received.

3.6.17 Warning Messages

3.6.17.1 No search results

When no results are presented in the content available page, the reasons are mainly due to on these three situations:

1. There are no servers available at home; therefore no content can be retrieved from it. This is solved by adding one server with content to the network. You can check the availability of servers from the List Devices page.

2. The servers don’t have any content shared in the network. This is solved by adding some content to the servers.

3. The search parameters don’t match with any of the contents. Modify the search parameters, they might be too restrictive.

Figure 57 shows the message that will appear when no content is found.
3.6.17.2 No connection to content distribution

This error is displayed when the content distribution service is not found. This could be due to several reasons.

1. The Content Distribution service is not working properly. Check the content distribution console to determine the possible faults.
2. The Content Distribution IP address set up in the ApplicationResources.properties file is not right. Change this value to the correct one.

Figure 58 shows the message that will appear when there is not connection to Content Distribution service.

3.6.17.3 Session problem

This problem appears when there’s a session validity problem. The reasons might be due to one of the following.

1. Cookies are not enabled in the browser. Enabling cookies in the browser will solve this problem
2. We are trying to access a page directly without following the normal flow. Follow the normal flow of the application.

Figure 59 shows the message that will appear when there is a session problem.
3.6.17.4 No devices detected

If neither servers nor renderers are found in the home, and none of the preceding errors occurs, some of the following reasons might be causing the problem:

1. Check the network connection.
2. Check that the router allows UPnP traffic.
3. Check the firewall is not blocking UPnP traffic.
4. Check that the device is online and that the UPnP capability is enabled.

3.6.17.5 No recommendation available

The application can't find any property of the item on the internet. This is a minor problem since not all the items have a description in the sources we use. In this case, the description of the content should be entered manually.

Figure 60 shows the message that appears when no recommendation is available.
3.7 Context Dependent Personalization of Multimedia

3.7.1 Introduction

This section describes how the application can be used in order to accomplish the needs of the user, and possible problems.

3.7.2 User Interface

The application provides web interface for getting ranks of videos. Video names and their metadata should be sent to the application as function parameters. The video rank calculation relies on static user model, stored in UMPS database. In case of multiple users willing to watch movie together, preferences of these users are averaged. Dependency on other context types (such as day of week, time of day and custom context types) can be taken into account by calling another overload which uses these contexts in rank calculation. This overload takes current day of week (such as Monday, Tuesday etc) and numerical value of current time, and converts current numerical time to semantic time (such as “Morning”, “Evening” etc). After that time context is merged with other contexts passed as function parameter. In case of multiple contexts these contexts should be merged with ‘¤’ character. This functionality is mainly intended for using dependency of personal preferences on custom context types, such as “CampFireEvening”, “hki” or “DinnerWithMotherInLaw”: context types which users create themselves and add to the application developer-defined context types (see Figure below). These context types are usually names of events from user calendars.

More details about UMPS GUI for setting user preferences are provided in UMPS documentation. When configuring context-dependent user preferences, it is needed to take care that context ontology is up to date, because similarity between current context and context attached to user preferences is calculated as a percentage of context descriptors (strings) which match exactly, and e.g. “week day” and “weekday” strings are considered different.

Figure 61: User Profile Acquisition
3.7.3 Application output

The main output of the application is the ranked list of multimedia. Ranks range from -5 to 5, where 5 denotes "strongly recommend" and -5 denotes "not recommend".

Ranks are calculated according to user preferences, specified in the user profile, and multimedia metadata. Additionally, ranks are affected by user holidays plans: if users plan holidays in some country, movies about this country ("isAbout" metadata descriptor) will be ranked higher than in case of no holidays. If users have little time before next appointment, movies which duration exceed available time will receive rank = -5. However, this functionality depends on availability of HomeAgenda Context Source and ContextInterpreter component of CMS. ContextInterpreter collects outputs of different Context Sources, and application queries ContextInterpreter for users' holidays plans and available time.

Comparison of movie duration with available time of users requires the following format of time string: hh:mm:ss (2:54:45 means 2 hours, 54 minutes, 45 seconds). If duration is less than one hour, "0" should be put in hour field.

Ranks are calculated as weighted sum of preference values for movie metadata descriptors (weighted with relative importance of these descriptors – see Installation paragraph 9.2.3, which explains which branches of user profile are used and how setting IDs should correspond to each other.

Application provides the following overloaded versions of getPrefsValue service:
1. string GetPrefsValue(string[] MetadataString, 
   string[] userID);

This overload expects metadata in a format produced by MMC. In this case preference values for many videos can be calculated in one function call; metadata of each movie should be passed in one MetadataString. Part of such long metadata string is presented below:

```
<ContentWorld:MMContent_includedInCompilation rdf:resource="http://amigo.gforge.inria.fr/owl/ContentWInstances.owl#Matrix_Trilogy"/>
<ContentWorld:directedByDirector rdf:resource="http://amigo.gforge.inria.fr/owl/ContentWInstances.owl#Andy_Wachowsky"/>
<rdf:type rdf:resource="http://amigo.gforge.inria.fr/owl/ContentWorld.owl#Science-Fiction"/>
<ContentWorld:involvesPeople rdf:resource="http://amigo.gforge.inria.fr/owl/ContentWInstances.owl#Wachowsky_Brothers"/>
<rdf:type rdf:resource="http://amigo.gforge.inria.fr/owl/ContentWorld.owl#Action"/>
<ContentWorld:playedByActor rdf:resource="http://amigo.gforge.inria.fr/owl/ContentWInstances.owl#Carrie-Anne_Moss"/>
<rdf:type resource="http://www.owl-ontologies.com/Amigo/Multimedia.owl#Video"/>
<ContentWorld:playedByActor rdf:resource="http://amigo.gforge.inria.fr/owl/ContentWInstances.owl#Keanu_Reeves"/>
<ContentWorld:directedByDirector rdf:resource="http://amigo.gforge.inria.fr/owl/ContentWInstances.owl#Larry_Wachowsky"/>
<multimedia:director rdf:datatype="http://www.w3.org/2001/XMLSchema#string" >Wachowsky Bros.</multimedia:director>
```

In order to calculate ranks, the following actions are performed: first the correspondence between the keywords (like “playedByActor”) and ContentWorld ontology terms (like “Actor”) is found; next values for user preferences for settings “Keanu_Reeves”, “Science-Fiction” and so on are taken from user profile; next relative importance of each metadata descriptor (like “actor”, “genre” etc) is taken from user profile. Then the rank of each movie is calculated as weighted average of user preference values for each metadata descriptor; and then these steps are repeated for each user and resulting preference value of multi-user environment is calculated. For multi-user environment application calculates preference value of multiple users by using so-called “average without misery” strategy: if preference values of all users exceed MiseryThreshold, average of user preferences is calculated. Otherwise minimum of preference values is returned. UMPS stores user preferences in a range from -5 to 5, where 5 denotes strong liking and -5 denotes strong dislike. Default value of MiseryThreshold is 3, but it can be changed: file C:\UMPS\config1\port_number.txt contains two values: the first value is port number, and the second value is MiseryThreshold. If no file is provided, default values are used.

2. string GetPrefsValueInContext(string[] MetadataString, 
   string[] userID, string CurrentContext);

This function also expects metadata in MMC format, but it allows to take into account dependency of user preferences on other contexts (previous function only considered
dependency of users’ preferences on presence of other people. This function takes current day of week (such as Monday, Tuesday etc) and numerical value of current time, and converts current numerical time to semantic time (such as “Morning”, “Evening” etc). After that time context is merged with other contexts passed as function parameter. In case of multiple contexts these contexts should be merged with “¤” character. This functionality is mainly intended for using dependency of personal preferences on custom (user-defined) context types, such as “CampFireEvening”, “hki” or “DinnerWithMotherInLaw”, that is, context types which users create themselves and add to the application developer-defined set of context types. We found this functionality very useful because it allows to take into account dependency of user preferences on personal events: names of events in user calendars vary a lot, and the only way to process such events is to allow users to give them custom names and to store these names in UMPS.

Ranks are calculated as follows: if current context and context attached to the user preference match exactly, context-dependent preference value is used for estimation of user preferences; if similarity between current context and context attached to the user preference exceeds 40%, average between context-dependent and context-independent preference value is taken; otherwise context-independent preference value is used.

3. string GetPrefsValueFromMultipleStrings(string MovieName, string[] MetadataString, string[] userID, string CurrentContext)

This function calculates preference value for one movie at a time, and it expects different format of metadata: array of strings, each string in a format (note that there is no whitespace after colon):

duration:2:54:45
isAbout:history
actor:Keanu_Reeves

Calculation of ranks and other functionality is same as in other functions, except that this function expects that all context parameters are passed, including time context. This was done for compatibility with TV program recommender application used for testing: we observed that although for majority of users using time context improves accuracy of recommendations, for some users semantic time values should be personal (e.g., different users feel differently what is “morning”): some users think that morning ends at 9 a.m., while some other users think that morning lasts until noon).

Next figure presents the screenshot of a client which received preference values of multi-user environment where one of the users does not like thrillers. The rank calculated for multi-user environment in which one of the users does not like thrillers (although likes some of the actors), while the other users like. Here MiseryThreshold=3 was used.

![Figure 63: CDPM client example 1](image)

Next figure presents the screenshot of a client which received preference values of same multi-user environment, but here MiseryThreshold=-4 was used, which means that application will calculate average of user preferences values in most cases (except for the cases when some of users has set “-5” preference value)
We suggest that too low MiseryThreshold should not be used, because too low threshold ignores strong dislikes and can lead to users' dissatisfaction. We suggest that MiseryThreshold should be at least positive.

This application was tested for personalisation of retrieval of home videos (videos made by the users). Figure below presents a screenshot of a recommender application which ranked home videos according to the user preferences and context.

3.7.4 Warning Messages
If application returns rank = 0, most probably something is wrong.

3.7.4.1 ContentWorld ontology reading failed
If application is supposed to process metadata strings in MMC format, it requires ContentWorld.owl and ContextWInstances.owl to be placed in C:UMPS\config1\ directory. If it does not find ContentWorld ontology, it gives an error message.
3.7.4.2  Metadata description parsing failed
The application relies on metadata for ranking multimedia items. If metadata parsing failed, application can not provide recommendations. Failing can be due to the wrong format of metadata. In this case application will return empty field for movie name and 0 rank. In the Figure below parsing of metadata of second file failed

![Metadata description parsing failed](image)

Figure 66: Metadata description parsing failed

3.7.5  User profile reading failed
The application accesses user preferences via direct DB interface. It expects to find UMPS under C:\. If it does not find UMPS there, it throws exception.

If userID does not exist in the database or if settings for this user are not set for settingIDs like actors, genres etc, application will return 0 movie rank. If settings for relative importance of movie metadata are not set, small (non-zero) default values for relative importance of movie metadata will be used, and this will result in low ranks.

3.7.6  ContextInterpreter not found
ContextInterpreter is not mandatory, but some of functionality relies on it, e.g., not recommending too long movies if users have appointments in near future. ContextInterpreter must be started before the application (and required context sources must be started before ContextInterpreter). When the application starts, it checks whether it can find ContextInterpreter or not, and displays this information:

![ContextInterpreter found](image)

Figure 67: Get Video Preferences service found ContextInterpreter component.

![ContextInterpreter not found](image)

Figure 68: Get Video Preferences service had not found ContextInterpreter component
3.8 Parental Control

3.8.1 Introduction
This section attempts to describe the basic functionality of the PC application.

3.8.2 PC Rules
A PC user (usually admin only) is capable of maintaining and managing a series of rules that are stored in a MySQL database, which is especially created for the application. In fact, for a PC user, several database entries exist with the following fields:

- RuleID which is the unique identifier of each rule
- Description which is a short description of the rule
- UserID to correlate the rule with the user that is applied
- ServiceProperties to apportion the existent rule to a specific genre of movie
- ActivationStatus to identify whether the rule is activated or not
- Action to perform for that specific rule (deny, ask or allo)
- ruleStartHour && ruleEndHour the hours between this rule applies

The PC user can manage the rules via the HIE integrated application. The screenshot of the introductory page for this reason is the following.

![Parental Control](image)

*Figure 69: PC main page*

For this reason the User visits the following web pages:

- Add Rule page: Fill the available information and choose a user (usually child) from the available at the UMPS database.
Figure 70: PC Add Rule page

- Edit Rule page: Select a rule based on its description and edit (by pressing “Get Rule” button) it to change the information regarding all the fields except for the rule’s name (when ready press the “Update Rule” button).

Figure 71: PC Get Rule page
Remove Rule page: Select a rule from the available ones (press the “Get Rule” button when ready), view it and if wish to, remove it (press the “Remove Rule” button).

Figure 72: PC Edit Rule page

Figure 73: PC Remove Rule page details
3.9 PC Functionality

At this point, we aim to describe the main functionality of the Parental Control application provided in WP6. Thus, we will describe a step-by-step scenario on how to start the framework for it and how the core functionality is taking place.

Firstly, for the proper operation of the PC application the following steps should be performed in order to activate all the other components that are required (see the installation instruction for installing and configuring each of the components below):

1. Start Oscar OSGi with the profile mentioned on previous subsection
2. Start all the bundles except for the Parental Control.
3. Start CADMS and wait for content adaptation
4. Start EMIC WSDataStore Service and wait for successful startup message
5. Start EMIC ContentDistribution Service
6. Start Tomcat 5.0.28
7. Start the Parental Control bundle and wait until the “Soap Agent is waiting for incoming requests” message appears.

8. Start the PC Mother and Father applications (run Mother and Father batch files respectively) which are waiting for incoming requests from their child.

Note that more details on how to properly start all the components apart from the two last ones, is available at the MMC installation and configuration part of this document.

Start a Mozilla Firefox browser's instance and insert the URL of the HIE, something like http://localhost:8080/hie/ . Then press the Home Entertainment link and on the web page that is loaded press Search Button to search for content of any type or choose a more specific search. Then according to what content is loaded inside the CADMS_Content directory of the CADMS installation folder, you can see available videos, photos, etc.
From the list that is shown on this page, choose one of the available videos to play it on the Browser renderer (VLC plugin of Mozilla Firefox). The page that results is like the following.

Afterwards, press the *Here* link and the page that follows is the plugged-in VLC player, which will play the content and will be controlled by the PC application.

![Figure 80: Content playback via PC](image-url)
Press now the *Play* button to have the content you chose played. At some time, the movie will stop and a notification message will appear to the applications that have been started from Mother and Father (either PC/Laptop or PDA/Mobile phone) (in case of course that the specific genre for specific user is under parental control permission). The message contains the user that wants to watch the movie and the genre of movie that prefers to watch. The parent (either father or mother with priority given to mother) decides or not to allow the child to watch the movie. If the child is allowed to watch the movie, then the playback of the movie is started, otherwise a notification message is displayed informing the child that is not allowed to watch the movie or the parents were unavailable.
3.10 Privacy Enforcement

3.10.1 Introduction

This section attempts to describe the basic functionality of the PE application and present the provided Rule management capabilities with regards to it.

3.10.2 PE Rules

Each PE user is capable of maintaining and managing a series of rules that are stored in a MySQL database, which is especially created for the application. In fact, for each PE user, several database entries exist with the following fields:

- RuleID which is the unique identifier of each rule
- Description which is a short description of the rule
- OwnerUserID to correlate the rule with its owner user
- ServiceType to apportion the existent rule to a specific service
- ServiceDescription, the service’s description
- ActivationStatus to identify whether the rule is activated or not
- IntruderUserID to specify for which user(s) the rule is applicable

Each PE user can manage the rules that belong to him/her via the HIE integrated application. For this reason the User visits the following web pages:

- Add Rule page: Fill the available information and choose an intruder user from the available at the UMPS database.
- Edit Rule page: Select a rule based on its description and edit it to change the information regarding all the fields except for the rule’s id, its description and the owner user id.
- Remove Rule page: Select a rule from the available ones, view it and if wish to, remove it.
- List Rules page: List all the rules for the specific user.
- Set User/Content/PrivacyLevel association: Set the privacy level for the specific UserID/ContentID combination choosing one of the following 5 levels:
  - Appropriate
  - Business Confidential
  - Inappropriate
  - Personal
  - Top Secret

From the above levels, if the user is viewing the specific content and there is a user/content/privacy record on the subsequent privacy_enforcement DB which is characterized as one of the 4 last levels, then the content is considered private and there is a notification trigger when an intruder user enters the controlling area.
3.10.3 **PE Functionality**

At this point, we aim to describe the main functionality of the Privacy Enforcement application provided in WP6. Thus, we will describe a step-by-step scenario on how to start the framework for it and how the core functionality is taking place.

Firstly, for the proper operation of the PE application the following steps should be performed in order to activate all the other components that are required (see the installation instruction for installing and configuring each of the components below):

9. Start Oscar OSGi with the profile mentioned on previous subsection
10. Start all the bundles except for the Multimedia Context Source and the Privacy Enforcement ones.
11. Start CADMS and wait for content adaptation
12. Start EMIC WSDataStore Service and wait for successful startup message
13. Start EMIC ContentDistribution Service
14. Start Multimedia Context Source on Oscar GUI
15. Start Event Monitor Tester application, press Find to find a broker (wait for the message in Console part of the window), then load the description_userlocation.xml to register a Context Source description (the load and register button on the middle part of the screen) and then press the other Load (the bottom one) to load the testing sparql answer text – file sparqlanswer_userlocation.xml.
16. Start the Privacy Enforcement bundle and wait to register to both context sources, the multimedia one and the testing location one. In fact wait for an oliebol message in Address Event Monitor area of the Event Monitor Tester Tool and a message ANS Notifier=-1 in the Oscar’s console window.

After the above steps you should see something like the following window:
Note that more details on how to properly start all the components apart from the two last ones, is available at the MMC installation and configuration part of this document.

Start a Mozilla Firefox browser’s instance and insert the URL of the HIE, something like http://localhost:8080/hie/. Then press the Home Entertainment link and on the web page that is loaded press Search Button to search for content of any type or choose a more specific search. Then according to what content is loaded inside the CADMS_Content directory of the CADMS installation folder, you can see available videos, photos, etc.
From the list that is shown on this page, choose one of the available videos to play it on the Browser renderer (VLC plugin of Mozilla Firefox). The page that results is like the following.

**Figure 83: Select renderer in MMC**

Afterwards, press the *Here* link and the page that follows is the plugged-in VLC player, which will play the content and will be controlled by the PE application.

**Figure 84: Playback controlled by PE**

Press now the *Play* button to have the content you chose played. At some time go to the Event Monitor Tester and on the sparql answer area change the literals under binding names *x* and *y* to proper ones (the *x* corresponds to the intruder and the *y* to the area we want to apply PE into). At the moment, the PE application’s owner user is hard-coded to “userMMA”. The privacy_enforcement DB has some intruder users extracted from the UMPS service and that means that one existent intruder for the owner “userMMA” should be present. The room we control is hard-coded to “Bedroom”. Thus, we fill these two literals and afterwards we press at an arbitrary moment the *Send* button. At this time, the PE bundle receives the notification and pauses the content played on the VLC player, waiting for the intruder user to leave the room. At another arbitrary moment, we change again the literal *y* to “send” the intruder user to one of the adjacent rooms (hard-coded at the moment to “Bathroom”, “Kitchen” and “Corridor”). When the intruder leaves the control room the PE bundle pop-ups a GUI to ask the owner user whether he/she desires to resume the content or to stop it. The thread waits for 30 seconds for the user’s answer and...
acts according to it. If the user pressed the Yes button the content is resumed, otherwise
the content is stopped. This procedure can be repeated accordingly, and involve other
users as well, who may or may not be intruders for the specific user and content, which
may or may not be characterized as private for the specific user/content/privacy level
combination.

### 3.11 Board Game

This chapter contains a very short summary of the detailed installation and configuration
documentation for the Board Game available under:

[Amigo]/WP6/Boardgame/TechnicalDescription.doc

#### 3.11.1 System requirements

- Windows XP equipped computer with min. 1 and up to 3 sound cards and 3 USB ports
- The Hardware described in the components chapter Board Game

#### 3.11.2 Download

The Board Game Demonstrator application is composed of a PEGASUS server
component and a lot of PEGASUS client applications. Each client establishes a
communication channel to the server, so all components together make the Board Game.
Download the whole Board Game bundle from the gforge server under:

[Amigo] \ WP6 \ Boardgame

#### 3.11.3 Install

Unzip the Board Game archive to a folder on the local hard drive. Connect the game
board, the RFID reader, VTT gesture device and PDA to your computer. Use an USB to serial
adapter to connect the VTT gesture device if you do not have a serial port. Switch on the VTT
gesture device's sender and receiver. Set up the LAN connection for the PDA. You can test
single devices with the respective configuration or test tools:

Test the RFID reader with:

\HypPegGame\bin\RFIDTest.exe

Test and train gestures for the VTT gesture device with

\HypPegGame\projects\Caves\trainGestures.bat
(username: ccgamer)

Test and rotate the game board if necessary with:

DGT Board Tester from the game board’s driver CD

#### 3.11.4 Configure

The typical GUI of the Board Game Demonstration application is shown in the next
figure. As you can see, there is no integrated GUI, but a lot of application dialogs instead. It is
the nature of the Board Game that a lot of applications are performing different tasks to build
the environment for the hybrid game.

Each player is assigned to one pawn within the game play, when dropping the pawn on
the game board. The player names are pre-configured and not intended to be configurable for
the demonstrator application.
When starting the game with the startup batch file:
\HypPegGames\projects\Caves\DEMO.bat

a lot of application windows will open. One is called the VTT gesture device recognizer where you should select the appropriate COM port, where the gesture device is connected to. Once this has been done, the game is completely configured and ready to play.

Figure 85: The typical GUI of the Board Game Demonstrator
4 Conclusions

During all the development of the HIE demonstrator and since the very beginning of the workpackage live all partners in WP6 have followed the same goal: to design and built an ambient intelligence environment as close as possible to a home in the nearly future and which could exploit the benefits of the overall Amigo system. Although we have always kept in mind the recommendations, use cases and scenarios defined and validated by a wide and heterogeneous set of real users in WP1, it has been unavoidable to evolve and react accordingly during the workpackage life cycle. Sometimes this changes has been motivated by partners strategy modifications, some other times the natural evolution of middleware and IUS has forced us to adapt our developments (this interaction has also worked in just the other way) and sometimes we simply realized we wanted to follow a different path to reach the goals we signed and commit in the very beginning of the Amigo project. In any of the previous situations, we have kept a close contact with all the partners in the rest of the consortium (both “middleware partners” as well as “applications partners”) in order to be sure that we finally will reach the common objective: exploit and show the benefits of the Amigo system.

Now when we look three years ago back we can say that a lot of lessons have been learnt from this fruitful experience. Probably one of the most important one was the complexness of parallel and overlapping development between workpackages. It was really a challenge to fix timing and results with our colleagues from middleware development, but it wasn’t easier to sync efforts with the other two applications workpackages in order to align goals and working procedures. Moreover we needed to keep always an eye to the standardization, dissemination and exploitation activities inside the consortium which lead us to create profitable and worthwhile solutions with the software developed. And of course we always had a big responsibility the people involved in user studies in WP1. Those people gave us very good guidelines about what is expected in the digital home for the nearly future and it would be completely senseless (and not very smart from our side) to forgot what they claimed. To deal with all these “bounds and watchers” was really a challenge for us, but we are pretty sure they are also the biggest reason because the work done in WP6 and therefore the HIE demonstrator can be considered an actual success.

Not less important is the fact of how we decided to implement the demonstrator architecture and how to deal with all the consumer electronics devices an standard home user collect in the living room. The solution proposed (provide an unique Amigo Box where the major part of the Amigo middleware is running and rely on legacy devices supporting a web browser for accessing Amigo applications) was some kind of risky three years ago when we “cooked the architecture up”. However, nowadays the CE devices market (and deeply the mobile market) is following exactly this direction. So we are happy to conclude that Amigo applications developed here could be perfectly used for every WP6 partner future strategies in the context of the digital home.

Last but not least, the path started here does not end with the Amigo project final milestone. The HIE demonstrator constitutes a new Digital Home Living Lab, and it has been created in the context of this project with the goal of being used for further research and a hive of digital home and ambient intelligence activities taking advantage from the fruitful results of this project.
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