



Web Delivering of Music Scores

DE6.2.1

WebMusic Server Database 4.0

User Manual

Version: 1.0

Date: 21/09/01

Responsible: ARTEC (F. Spadoni, R. Lenzi)

Project Number: IST-1999-10165

Project Title: Web Delivering of Music Score

Deliverable Type: Public document

Deliverable Number: DE6.2.1

Contractual Date of Delivery: 31/08/2001

Actual Date of Delivery: 21/09/2001

Title of Deliverable: WebMusic Server Database 4.0 User Manual

Work Package contributing to the Deliverable: WP6

Nature of the Deliverable: PUB

Author(s): ARTEC

Abstract:

The purpose of this document is to provide a user manual for the WebMusic Server Database 4.0.

Keyword List:

music, internet delivering, audio format, image format, symbolic format, watermarking, protection, encryption, music distribution, copyrights, mp3, visually impaired people, speech music, Braille music, music analysis, music printing, music format.

1	OVERVIEW	3
1.1	WHAT IS THE SERVER DATABASE?	3
1.2	SYSTEM REQUIREMENTS	4
1.2.1	Hardware Requirements	4
1.2.2	Software Requirements	4
1.2.3	Recommended system	4
2	INSTALLING THE SERVER DATABASE	4
2.1	WEB INTERFACE	4
2.1.1	Installing the CGI compatible Web Server	4
2.1.2	Web Site preparation	5
2.2	SERVER DATABASE	5
3	WORKING WITH WEDELMUSIC SERVER DATABASE	5
3.1	SERVER DATABASE SETUP (FIRST RUN)	5
3.1.1	Settings	5
3.1.2	Populating the Database	10
3.2	DATABASE MANAGEMENT	11
3.2.1	Objects	11
3.2.1.1	Open	11
3.2.1.2	Modify	14
3.2.1.3	Search	14
3.2.2	Components	15
3.2.2.1	Open	15
3.2.2.2	Search	18
3.2.3	Local Distributors	19
3.2.3.1	Open	19
3.2.3.2	Search	21
3.2.4	Transactions	22
3.2.4.1	Open	22
3.2.4.2	New	24
3.2.4.3	Search	26
3.2.5	Other tools	27
3.2.5.1	Control panel	27
3.2.5.2	Genres	28
3.3	COMMUNICATION MANAGEMENT AND CONTROL	29
3.3.1	Web Communication	29
3.3.1.1	Web Communication Management	29
3.3.2	Secure Communication Channel (WCP)	30
3.3.2.1	Secure Communication Management	30
3.3.2.2	Secure Communication Control	30
3.3.3	Encryption manager	31
3.3.4	Log files	32
A	THE USE CONTROL MANAGER (UCM)	33
A.1	WHAT IS THE USE OF IT?	33
A.1	SYSTEM REQUIREMENTS	34
A.1.1	Hardware and Software Requirements	34
A.1.2	Recommended system	34
A.2	INSTALLING THE UCM MODULE	34
A.3	SETTINGS	34
A.3.1	Setup	35
A.3.2	WCP control	35
A.3.3	Publishers	35
A.3.4	Local distributors	37

1 Overview

1.1 What is the Server Database?

The W edelmusic Server Database is a powerful tool intended for music publishers, labels, conservatories and any other organisation that can be interested in storing, managing and finally distributing music on the Internet. The Server Database manages all the aspects related to storage, maintenance, e-selling and Internet delivery of W edel objects, which are digital objects containing music sheets, audio files, image files, symbolic notation and more. It is possible to store and easily manage millions of music scores, high quality audio and video recordings, images and documents on a single DBMS with multiple disks support (CDROM or DVD jukebox, multiple Hard Disks).

The Server Database provides a set of tools for storing up and securely delivering music in digital format. It contains the W EDEL Objects files and information about their identification and classification, and manages their delivering by means of a trustworthy mechanism. Storage of W edel Objects and all related components maintains their structure and provides automatic uploads and updates of information such identification and classification in several languages from existing W edel Objects (preparation of new W edelmusic objects is performed in conjunction with the W edelmusic Editor).

Local music distributors can connect to the Server Database via the Internet, browse music catalogue, select the W edel objects to purchase, buy them and finally download them – all strongly protected with security mechanisms. The Server Database directly publishes on the Web your music catalogues. Authorisation Management allows users to select and purchase (and pay) only the desired W edel Objects' components and to use them only for the desired operations, and ensures that for each component of a W edel Object only authorised (and hence purchased) operations are performed. Before delivering W edel Objects to a Local Distributor, the Server Database checks all the necessary authorisations and embeds into the object the list of all the allowed operation for each component (permissions configuration). These permissions allow the Local Distributor to use exclusively the purchased components according to the acquired authorisation and are valid only for the specific Local Distributor who bought them.

An extremely high level of security avoids unauthorised use of W edel Objects, using advanced watermarking and encryption mechanisms. W edel Objects are encrypted during the Internet delivery and remains encrypted on the Local Distributor side. Only the W edelmusic Editor, using the proper decryption key can open these objects to perform only the authorised (purchased) operations. For each delivered object, watermarking allows the retrieval of the copyright owner name and the identification of the responsible Local distributor. Log files are produced to trace the whole server activity, with special attention to communication and transactions; accesses to the web site are also monitored and logged.

Key management controls encryption key generation and storage, manages Local Distributors' public keys and solves key requests issued by W edel Editors, serving decryption keys to open W edel Objects.

Accounting of performed operations allows to keep track of all the transactions successfully completed by all the Local Distributors connected, along with details about date, time, permissions acquired for a specific component, prices and payment systems. Information regarding operation performed on the Local Distributor's side are also recorded and transferred to the Server Database, in order to prepare bills and charge the respective accounts. The Server Database accurately monitors all W edel Objects sales and deliveries, allowing automatic or manual checking and easy production of statistical reports.

This application is composed by tables that show which objects are contained in the Server and panels to manage and control the communications (both via the Web and through a secure protocol) with the Local Distributors.

Moreover, it is possible to perform searches among the W EDEL Objects at the Publisher side and via Web. Remote users can browse the publisher's music catalogue and search for the desired music objects, as well as any other information about the content of the Database.

1.2 System Requirements

Because this application has to work as a Server Database, providing to a large number access to typically a large amount of data, system requirements can be quite demanding.

The hardware has to be able to support the storage of a (possibly) huge amount of data, in form of WEDEL Objects, and to manage the communications with several Local Distributors simultaneously, using two different communication channels.

The Server Database has to perform multiple real-time encryption, decryption and watermarking operations required to concurrently prepare WEDEL Objects to be delivered to several different users.

The machine where the Server Database runs, typically has to provide also the Web Server use by the Server Database for implementing the Web Communication Channel.

1.2.1 Hardware Requirements

Minimum Hardware Requirements for the Server Database system are:

Processor	Pentium II 667 M H z, 128 K B cache
Hard Disk	The required Hard Disk space depends on the amount of objects to store. Good access time and transfer rate. A reasonably minimum requirement for the disk can be a UATA 66 disk with 2M B of internal buffer.
RAM	128 M B RAM

1.2.2 Software Requirements

Minimum Software Requirements for the Server Database system are:

Operating System	Windows NT Workstation
Web Server	any CGI-compatible Web Server, like Apache, Microsoft Internet Information Server, Xitami Tiny Web Server and many others.

1.2.3 Recommended system

Processor	Pentium III 800 M H z, 256 K b cache
Hard Disk	Regarding the HD, if a large number of objects are to be stored, a solution providing a FireWire array of hard disks is recommended. The Server Database provides mechanisms and interfaces to easily manage such devices.
RAM	512 M B RAM
Operating System	Windows 2000 Server with Internet Information Server 5.0

2 Installing the Server Database

2.1 Web Interface

2.1.1 Installing the CGI-compatible Web Server

W edelmusic Server Database uses a CGI-compatible Web Server to provide Web access to stored data via common Web Browsers. If a CGI-compatible Web Server is installed on the server where the Server Database will be installed, it could be easily set up for use with W edel Server Database. If no Web Server is installed, you can install the Tiny Web Server and the web site all at once

extracting the files from the zip archive “tinyweb+website.zip”, or you can put in your machine only the website files from the zip archive “website.zip”.

If you install the Tiny Web Server, you will be able to start it using the Server Database Control Panel.

2.1.2 Web Site preparation

The Server Database installation package already contains a working Web Site, composed of a set of static pages (HTML files) and dynamic pages. Dynamic pages are created automatically by the Server Database application logic, on the basis of the content of the Database itself (for example, as answer to a search request).

In case of need for changing the original Web Site, new static pages (i.e. new HTML files) have to be prepared by the Web Server operators or Web Site developers, either modifying the provided HTML files or creating new ones from scratch. In the last case, in order to have a completely working Web Interface, the new web pages have to maintain the links to the proper CGI scripts as provided by the original HTML files.

The starting page (typically the “index.html” file) and all the other static pages (for example the help page) have to be placed in the web server root directory. This folder must contain the cgi-bin directory too.

2.2 Server Database

To install the Server Database, simply copy the WEDEL Server directory in your computer and remove the read only property to the copied files. You should create a folder from where to upload new WEDEL objects into the Server, a folder where to prepare the objects to be delivered and a folder where to store the log files, too.

3 Working with W edelmusic Server Database

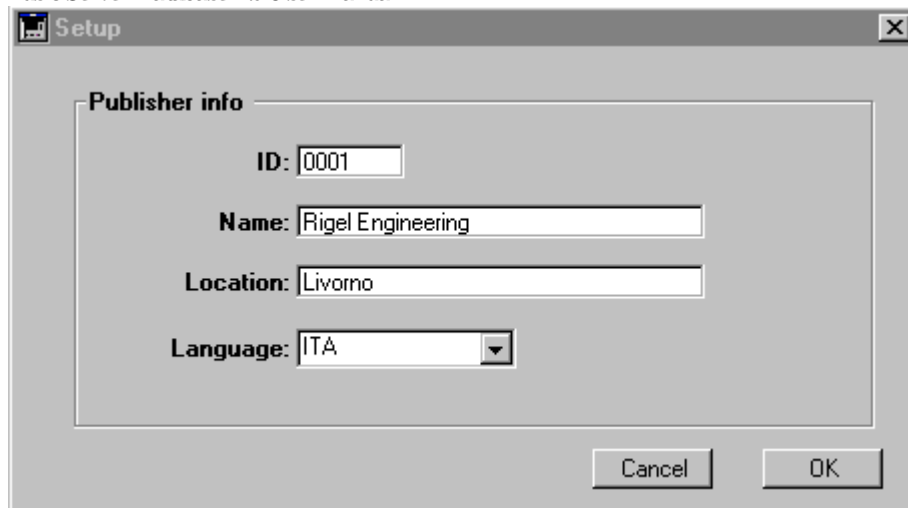
3.1 Server Database Setup (First Run)

As soon as you have installed the Server Database in your machine, you are able to run the “W edel server.exe” application file for the first time.

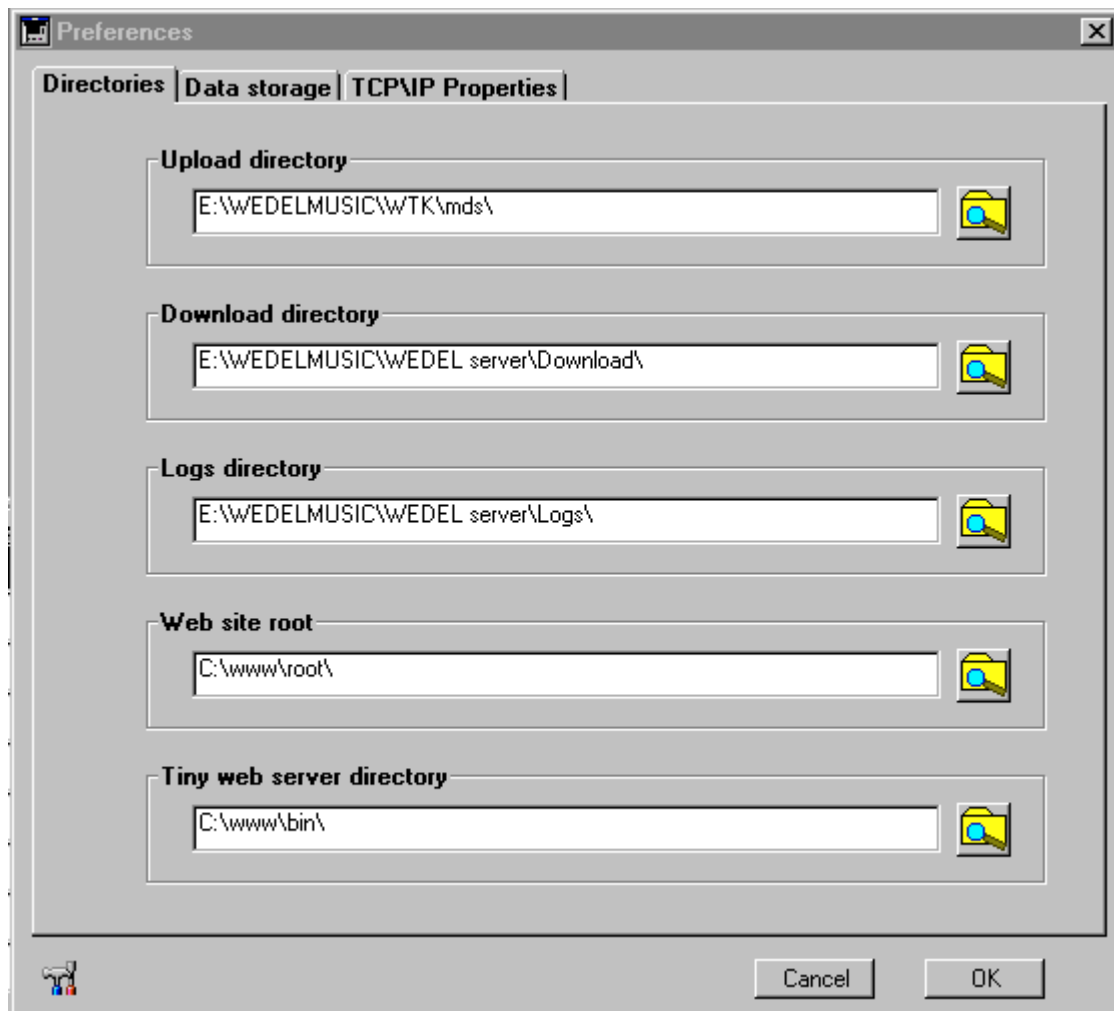
3.1.1 Settings

The following panels will appear to ask you to set several parameters:

- Setup: fill it in with publisher information.
 - Publisher ID, provided by the WEDELMUSIC Consortium. It is an alphanumeric code to identify the publisher.
 - Name of the publisher, i.e. Ricordi, Suvini and so on.
 - Location of the publisher: country, city...
 - Default publisher language, that is the language the publisher prefers to see objects classification.

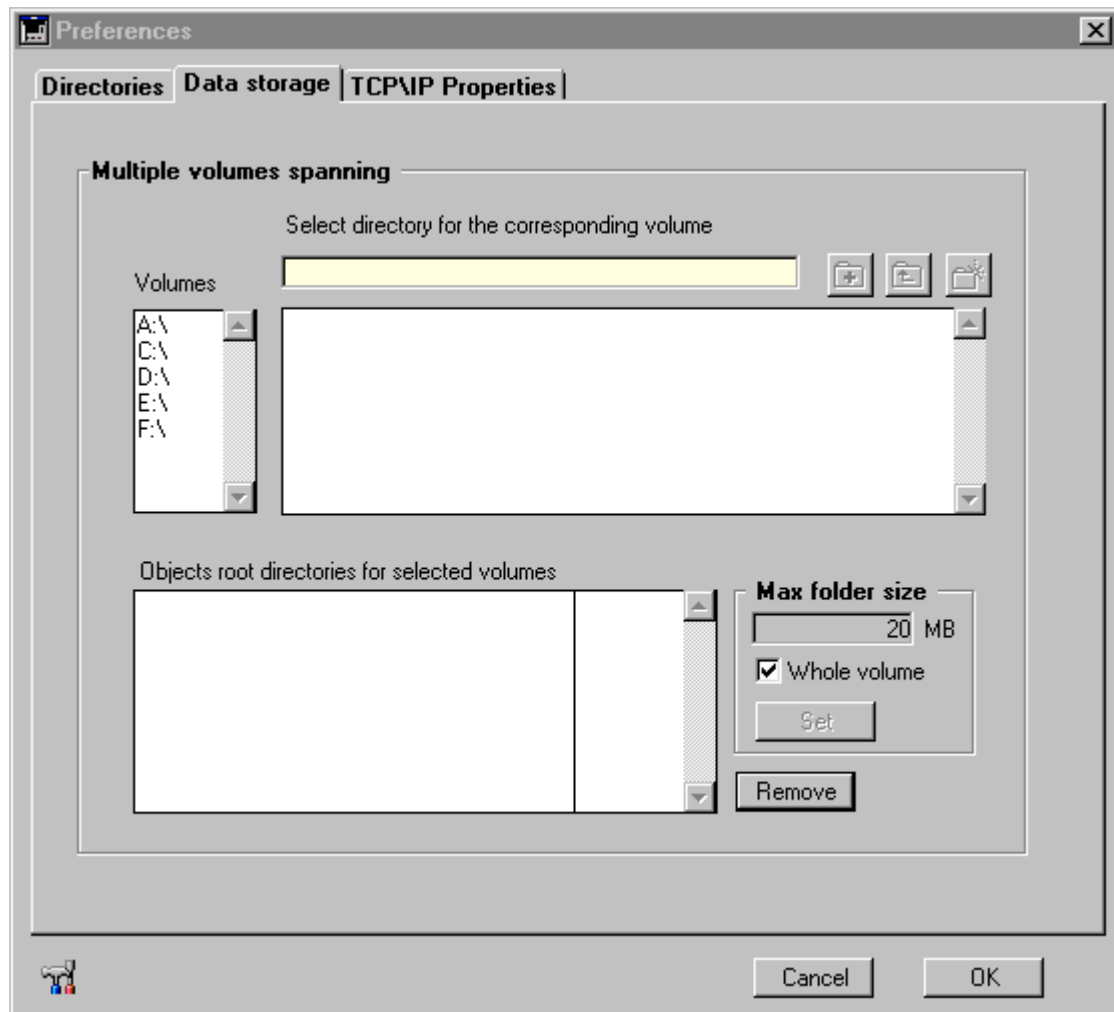


- Preferences:
 - in the "Directories" panel set the proper directories.

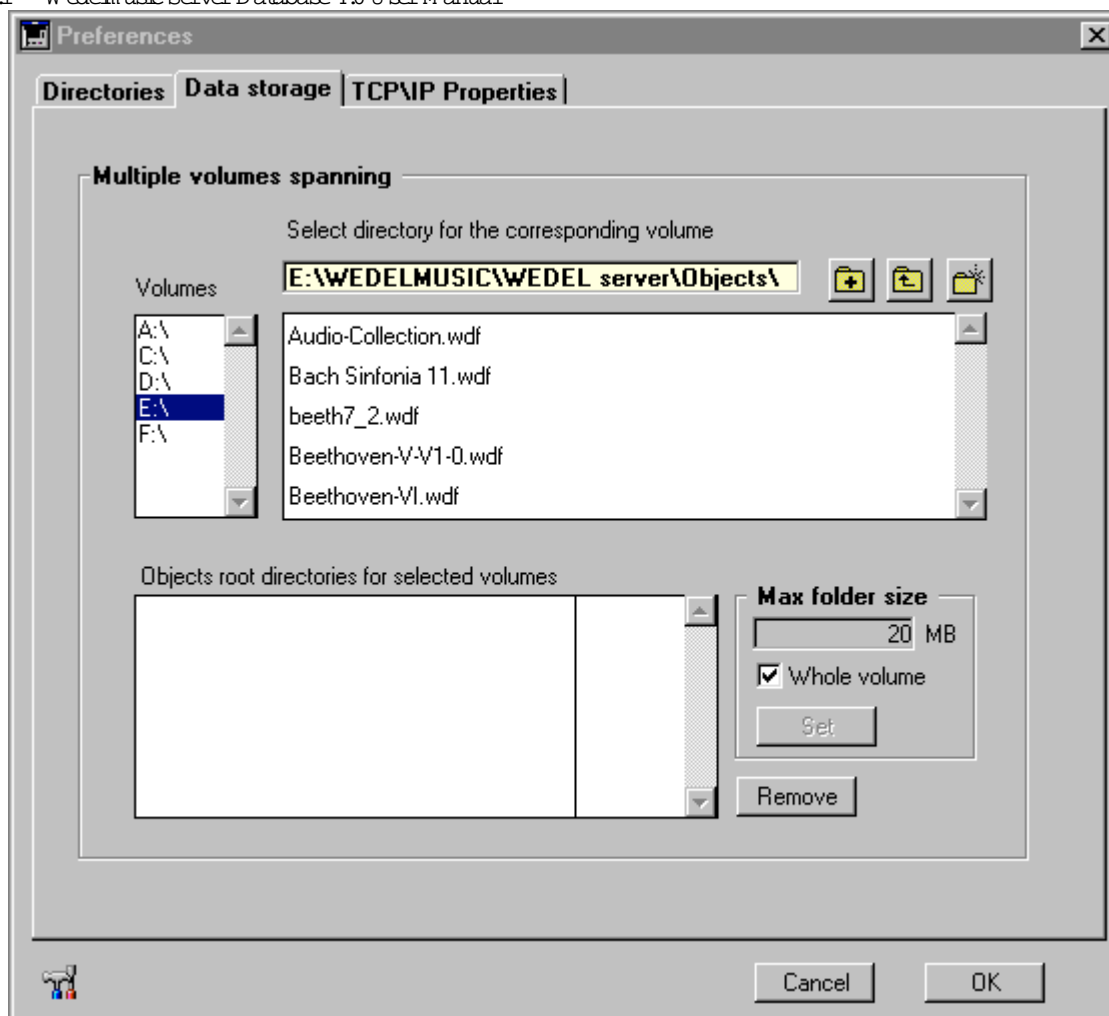


- The upload directory contains the new objects you want to upload into your Database.
- The download directory contains the watermark and encrypted objects to be delivered.
- The logs directory contains the log files created and filled by the Server.
- The web site root directory contains the home page file (typically, "Index.html") of your public web site.

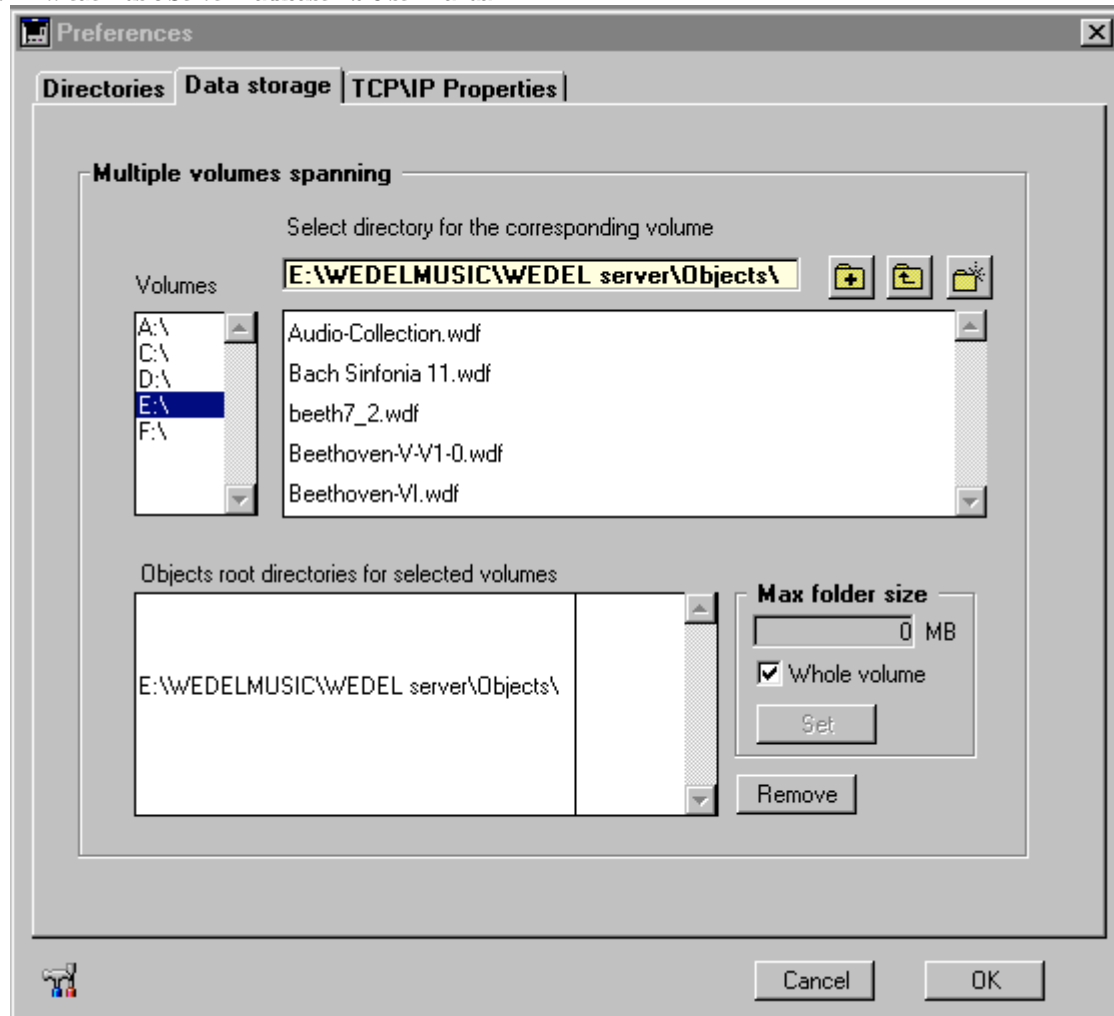
- The Tiny web server directory contains the executable file (typically "Tiny.exe") to start the Tiny web server (if you have installed it).
- In the "Data storage" panel set the folders (maximum one per volume) where you want the WEDEL objects be stored



- First, choose the volume and browse the file system to select the directory where you want to store the objects



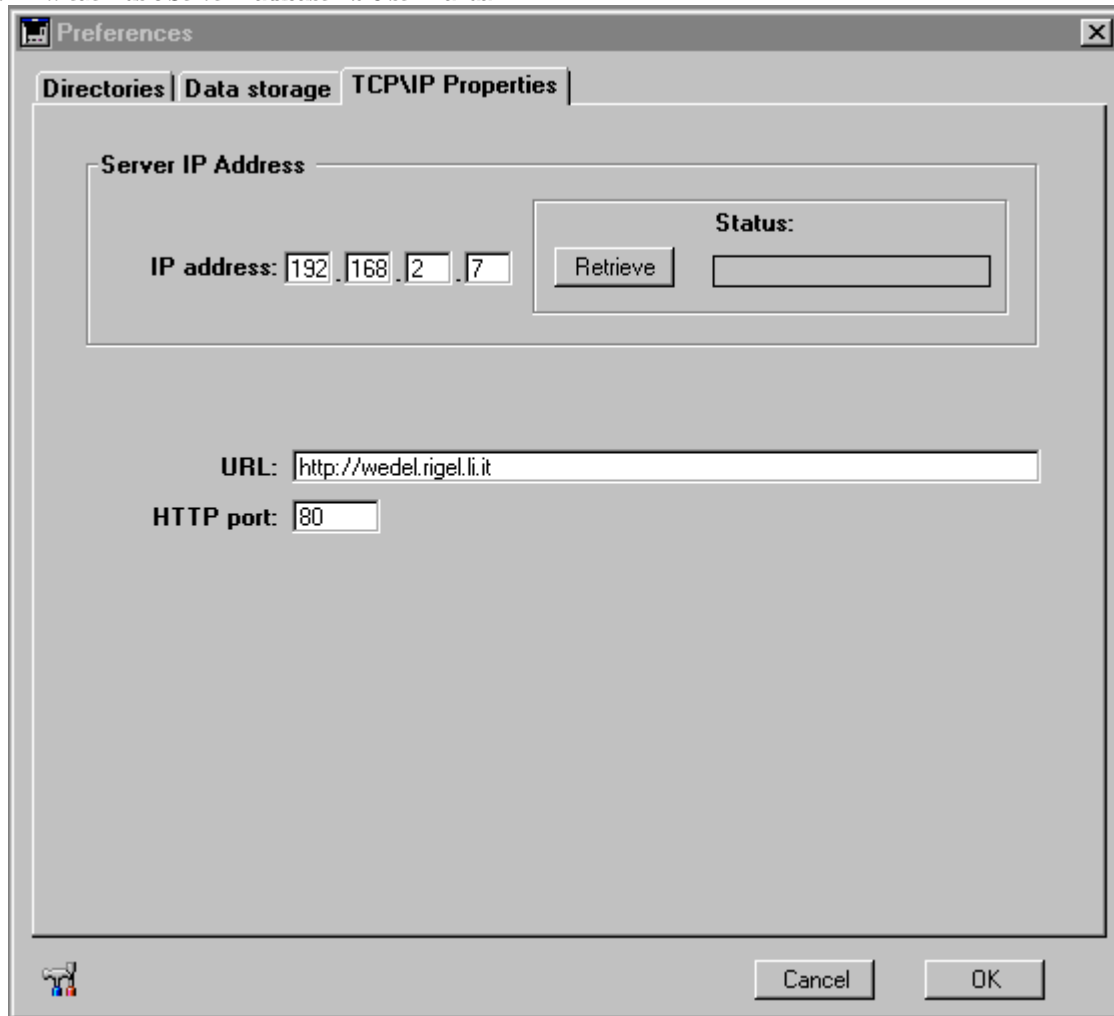
- Then, add the selected directory (that is the bold one) to the list below pressing the "+" button



You can choose to allow Server to use all the available space of that volume or to set a maximum folder size to fill.

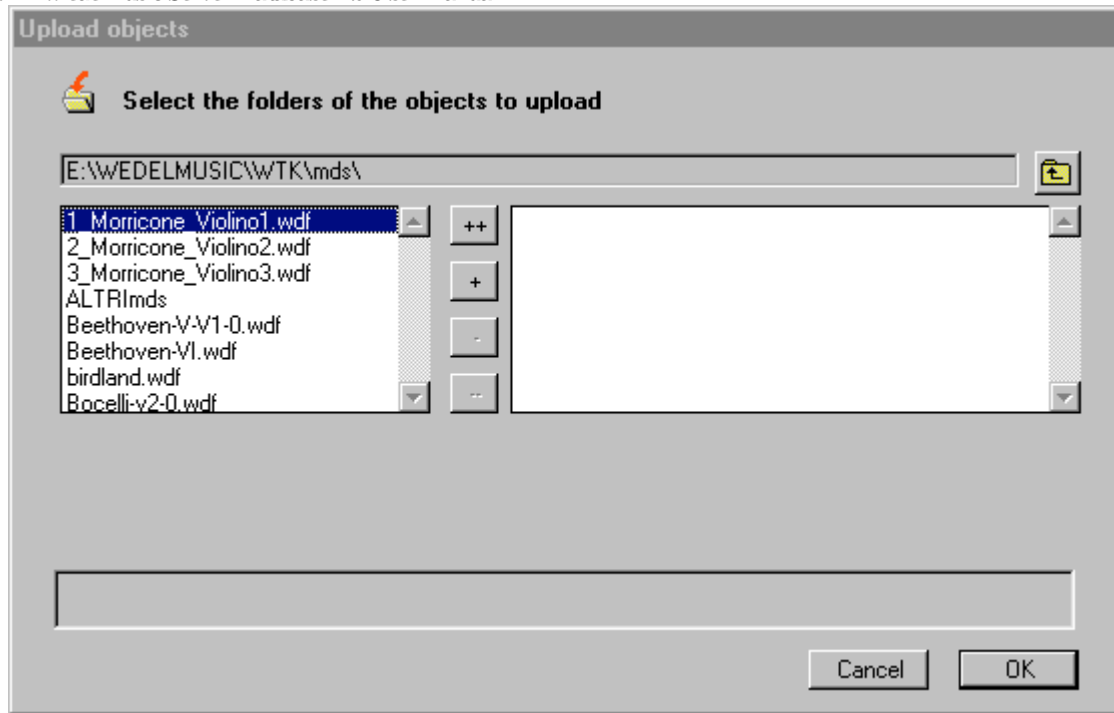
- Repeat this steps for every volume you want to use to store your objects.

- In the "TCP/IP properties" panel, set your IP address, your URL and your HTTP port.



3.1.2 Populating the Database

To fill your database with the W E D E L objects, press the upload button (the first) of the floating toolbar or select "Upload object.." from the Objects menu: a dialog box to select the objects to upload will appear.



From the left list you can select the directories containing W EDEL objects (the ones who end with "wdf") and add them to the right list. You can upload a single W EDEL objects or as many as you want: if you press the "++" button, all the objects listed on the left are added to the right list. So, if you have a broad collection of objects, you can store in the Server Database all at once.

When you have done, press the "OK" button: the Server Database will copy the objects in the right list into the directories you have set in the "Preferences" panel (see 3.1.1), according to their dimension and the available space in the relative volumes. Only valid W EDEL objects are stored. If you want to see how many disk space is used to keep all the files of your objects, have a glance at the database statistics by means of the control panel (see 3.2.5.1).

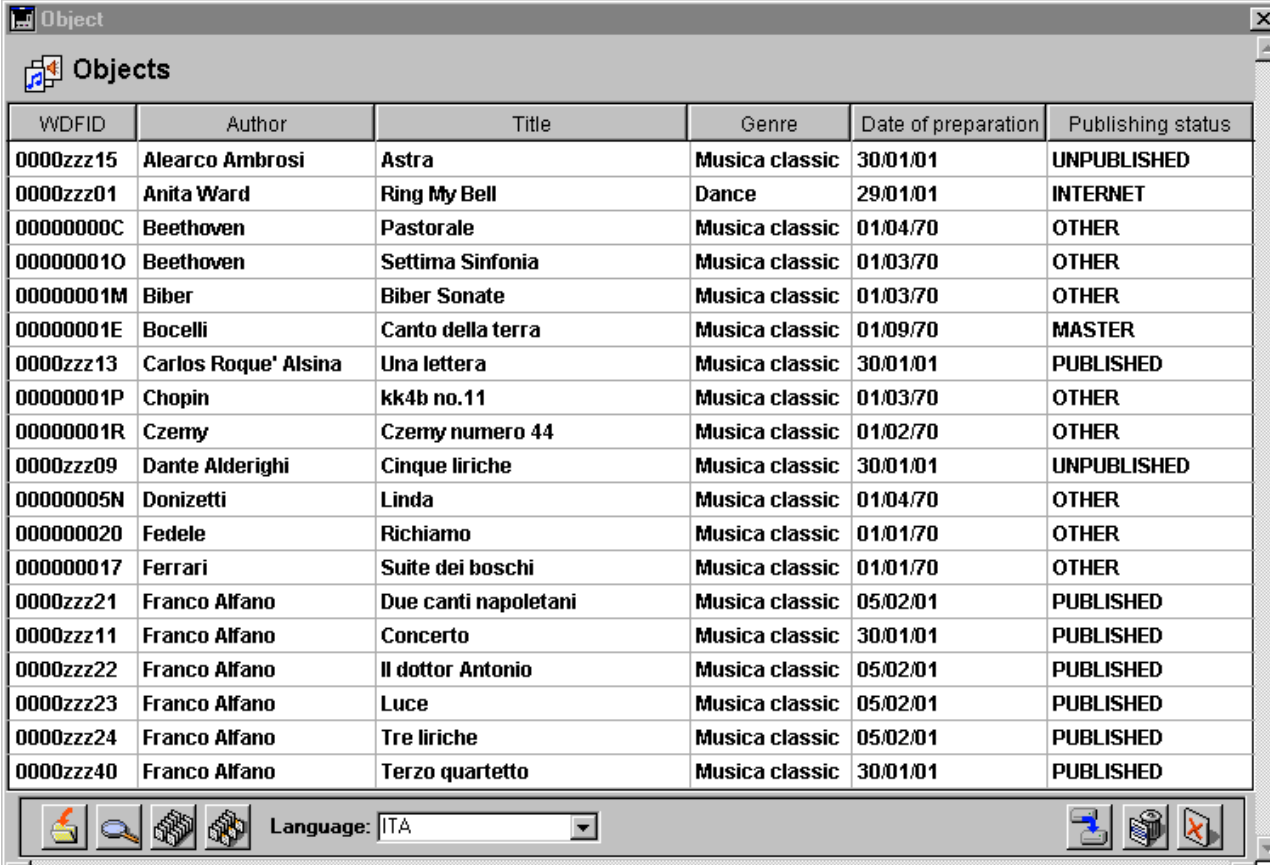
3.2 Database Management

The Server Database has a floating toolbar to access to the main functionalities. By means of it, we can open the chief windows and perform the most important operations. Let's start to learn how to perform them.

3.2.1 Objects

3.2.1.1 Open

Clicking on the "Open object" button, a window shows the complete list of the objects stored in the Database.



WDFID	Author	Title	Genre	Date of preparation	Publishing status
0000zzz15	Aleandro Ambrosi	Astra	Musica classic	30/01/01	UNPUBLISHED
0000zzz01	Anita Ward	Ring My Bell	Dance	29/01/01	INTERNET
00000000C	Beethoven	Pastorale	Musica classic	01/04/70	OTHER
00000001O	Beethoven	Settima Sinfonia	Musica classic	01/03/70	OTHER
00000001M	Biber	Biber Sonate	Musica classic	01/03/70	OTHER
00000001E	Bocelli	Canto della terra	Musica classic	01/09/70	MASTER
0000zzz13	Carlos Roque' Alsina	Una lettera	Musica classic	30/01/01	PUBLISHED
00000001P	Chopin	kk4b no.11	Musica classic	01/03/70	OTHER
00000001R	Czemy	Czemy numero 44	Musica classic	01/02/70	OTHER
0000zzz09	Dante Alderighi	Cinque liriche	Musica classic	30/01/01	UNPUBLISHED
00000005N	Donizetti	Linda	Musica classic	01/04/70	OTHER
000000020	Fedele	Richiamo	Musica classic	01/01/70	OTHER
000000017	Ferrari	Suite dei boschi	Musica classic	01/01/70	OTHER
0000zzz21	Franco Alfano	Due canti napoletani	Musica classic	05/02/01	PUBLISHED
0000zzz11	Franco Alfano	Concerto	Musica classic	30/01/01	PUBLISHED
0000zzz22	Franco Alfano	Il dottor Antonio	Musica classic	05/02/01	PUBLISHED
0000zzz23	Franco Alfano	Luce	Musica classic	05/02/01	PUBLISHED
0000zzz24	Franco Alfano	Tre liriche	Musica classic	05/02/01	PUBLISHED
0000zzz40	Franco Alfano	Terzo quartetto	Musica classic	30/01/01	PUBLISHED

Language: ITA

For every object, we can see immediately the identifier (WDFID), the author, the title, the genre, the date of preparation and the publishing status. You can sort this table clicking on the column headers. The Server Database supports a multi-language classification, so if you can choose the preferred one using the language list at the bottom of the table.

The operation performed by the four buttons on the left are (from left to right):

- upload of new objects (see 3.1.2)
- search for specific objects
- show all the objects
- show only the selected objects

while the three buttons on the right perform the following operations (from left to right):

- move the selected objects to another volume
- delete the selected objects
- close this window

To see the whole set of information about an object, double click on the interested one: the following window will appear.

Object

WDFID: 00000001E **Author:** Bocelli **Title:** Canto della terra **Genre:** Musica classica

Object Structure (Left Panel):

- canto
 - Symbolic
 - Bocelli-v2-0.swf
 - 1.Bocelli-v2-0.swf
 - 2.Bocelli-v2-0.swf
 - 3.Bocelli-v2-0.swf
 - ImageScore
 - Main Score.iwf
 - Piano.iwf
 - Voce.iwf
 - Document
 - bocelli_life_ita-doc.dwf
 - bocelli_news_ita-doc.dwf
 - Bocelli_Canto della Terra
 - Welcome To BocelliOnlin
 - Audio
 - canto della terra-mp3.awf
 - cantodellaterra-wav.awf
 - Video
 - Bocelli_cantodellaterra-m
 - Image
 - bocelli_disco_cover_pic-

Object Identification Panel:

WDFID: 00000001E
Version major: 1
Version minor: 0
Duration: 00:00:00

Object location:
Volume: E:\
Folder: Bocelli-v2-0.wdf\

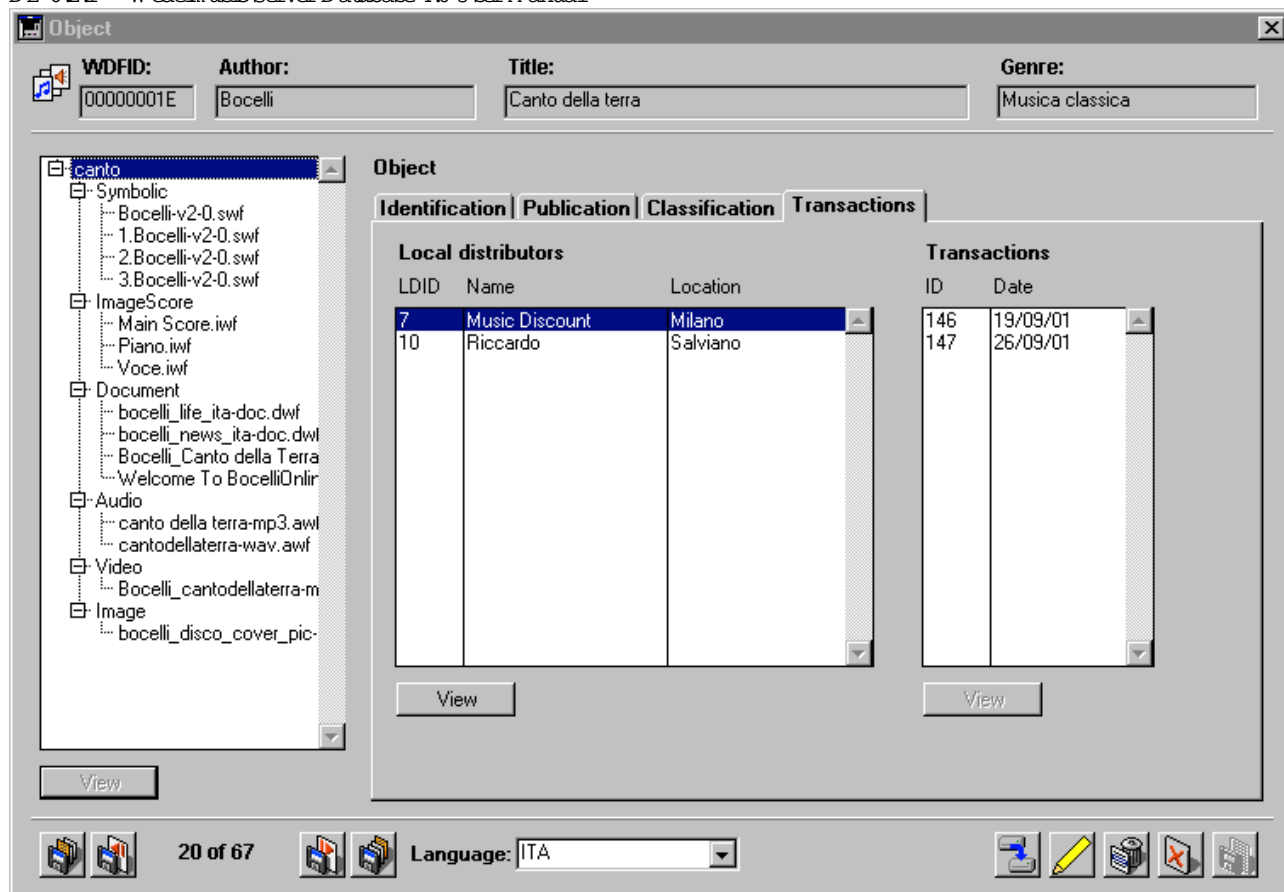
Genre ID: 1 **Change**
Sequence number:
Alphanumeric numbering:
Catalogue identification: Z3424
 :
 :
 :
 :

View

20 of 67 **Language:** ITA

Even in this window we have some buttons in the bottom. The four buttons on the left are used for selecting another object (the first, the previous, the next and the last). On the right, we have buttons already present in the previous window, except the second (the "Modify" button) and the last (the "OK" button). On the left, the structure (i.e. the ordered list of its components) of this object is displayed. The "Identification", "Publication" and "Classification" panels show the related static information.

The "Transactions" panel, instead, displays all the transactions the registered local distributors have performed concerning this object.



In this example, we can see that the "Music Discount" local distributor performed two different transactions on this object.

The object structure is a way to swiftly access to information related to a single component. If you select a component in the list, the panels show the identification, classification and acquired permissions of the selected component.

3.2.1.2 Modify

Using the Server Database, it is possible to modify some information related to an object, but not its structure, that is adding or removing components. If you click the "Modify" button, the modifiable fields such as the "Catalogue identification" are enabled to let the user enter the new values. To confirm these modifications, press the "OK" button.

3.2.1.3 Search

In the Server Database it is possible to restrict the list of shown objects by means of the search functionality. To open the "Object search" window, click on the first button of the third group in the floating toolbar, or press search button in the object list window or select "Search object.." in the "Objects" menu.

You can perform the object search filling the standard search fields and/or adding and removing different fields, to let the search as complex as you need. When you have filled all the interested fields, press the "Search" button: the object list window containing only those objects that match your search criteria will appear.

3.2.2 Components

3.2.2.1 Open

You can see the complete list of components stored in the Server Database clicking the "Open component" button in the floating toolbar or selecting "Open component.." in the "Components" menu. The window showing the list of all the components will appear.

Component						
Components						
WDFCID	WDFID	Publishing status	Author	Title	Genre	Type
0000000000001	0000zzz16	PUBLISHED	John Lennon	Jealous Guy	Pop	Audio
0000000000063	0000zzz17	PUBLISHED	Iron Maiden	Fear Of The Dark	Rock	Audio
0000000000062	0000zzz17	PUBLISHED	Iron Maiden	Fear Of The Dark	Rock	Audio
0000000000059	0000zzz17				Rock	Symbolic
0000000000014	0000zzz01				Dance	Video
000003000000E	00000003P	OTHER				ImageSco
0000000000004	0000zzz01				Dance	Audio
0000000000015	0000zzz03				Classical	Lyric
0000000000007	0000zzz04				Pop	Audio
000001000005E	00000003P	OTHER				Symbolic
0000000000012	0000zzz02				Rock	Symbolic
0000000000010	0000zzz02				Rock	Audio
0000000000005	0000zzz02				Rock	Audio
0000000000011	0000zzz02				Rock	Symbolic
0000000000013	0000zzz02				Rock	Symbolic
0000000000003	0000zzz01				Dance	Symbolic
0000000000006	0000zzz03				Classical	Symbolic
0000000000016	0000zzz04				Pop	Image
0000000000017	0000zzz05				Classical	Symbolic

As you can see, this window is very similar to the "Objects" one, and so its functionalities. Thus, if you double click on a specific row in this table, you will see all the information concerning with the selected component.

Component

WDFCID: 000000000001 Author: John Lennon Title: Jealous Guy Genre: Pop

Object info

WDFID: 0000zzz16

WDF Files location: Object16.wdf\

Responsible name: Riccardo Lenzi

Publishing status: MASTER

Copyrights: Rigel Engineering

View

Identification **Classification** **Permission**

WDFCID: 000000000001

File name: Audio\jealous.mp3

Type: Audio

Music geogr. area: England

Original language: ENG

Publishing status: PUBLISHED

Date of preparation: 01/06/00

Date of uploading: 31/01/01

Responsible name: Riccardo Lenzi

Quality level: 96

Copyrights:

Watermark: 0

Watermark code:

Watermark type:

Watermark parameters:

Catalogue identification: qw12

ISBN : primocodiceisxx

ISMN : secondocodiceisx

:

:

1 of 807 Language ENG

Different from the object details window, we have no more the object structure, but a reference to the object which this component belongs. As for the object window, the "Permission" panel shows all the permissions purchased by the Local distributors.

Component

WDFCID: 000000000001 **Author:** John Lennon **Title:** Jealous Guy **Genre:** Pop

Object info

WDFID: 0000zzz16

WDF Files location: Object16.wdf\

Responsible name: Riccardo Lenzi

Publishing status: MASTER

Copyrights: Rigel Engineering






Identification **Classification** **Permission**

Local distributors

LDID	Name	Location
5	Music Star	Livorno
7	Music Discount	Milano

Permissions

Trans	Operation	Price
148	OPENEXT	40
148	EXCERPTS	52
148	EXECUTE	25
148	EXPORT	96

1 of 807   **Language** ENG   

3.2.2.2 Search

Even for the components the Server Database has a search tool to allow the user to restrict the set of components to show in the list window.

Component search

Standard Search...

Title:

Author:

Original language:

Genre:

Additional Search...

Type

Piece type or ensemble

Options

☐ Case sensitive

☐ Entire word

Classification language:

More fields Less fields Cancel Search

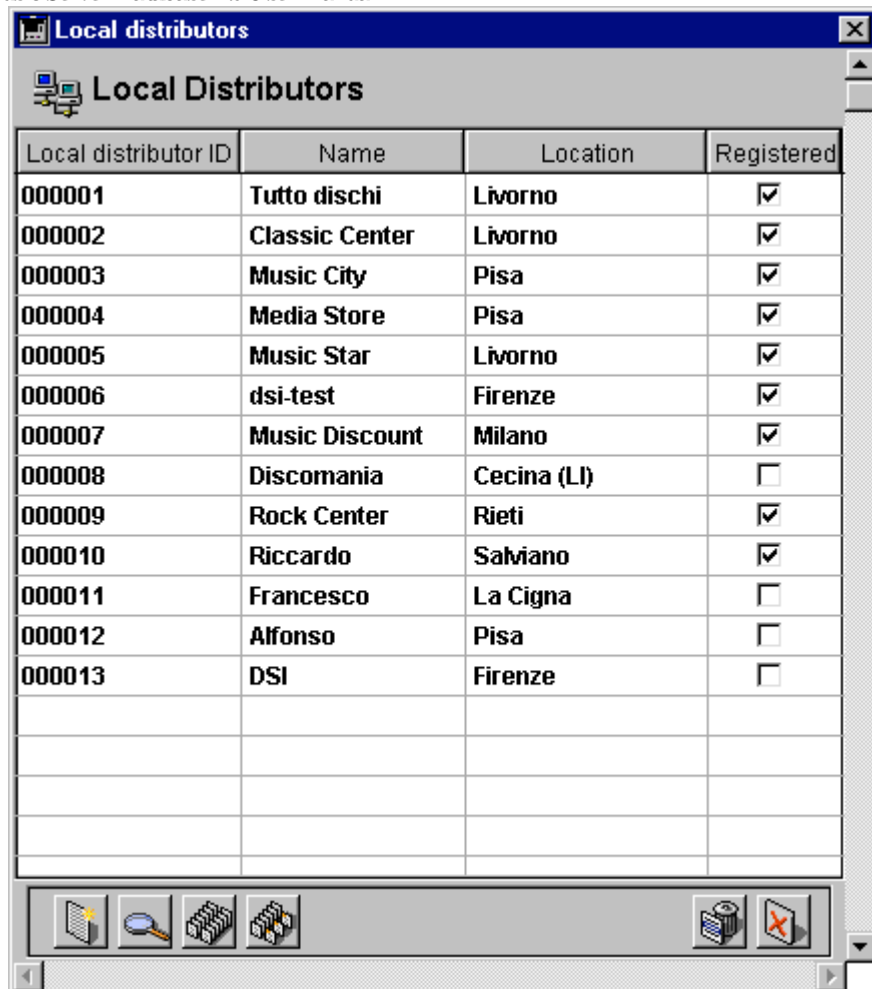
You can activate this window selecting "Search component.." in the "Components" menu or pressing the search button in the components list window (the first on the left) or clicking on the second button of the third group in the floating toolbar.

3.2.3 Local Distributors

The Server Database keeps a list of the partners allowed to perform transactions with it: the Local Distributors.

3.2.3.1 Open

If you click on the third button of the second group in the floating toolbar, or select "Open Local Distributors.." in the "Distributors" menu, a window showing the complete list of local distributors will appear.



Local distributor ID	Name	Location	Registered
000001	Tutto dischi	Livorno	<input checked="" type="checkbox"/>
000002	Classic Center	Livorno	<input checked="" type="checkbox"/>
000003	Music City	Pisa	<input checked="" type="checkbox"/>
000004	Media Store	Pisa	<input checked="" type="checkbox"/>
000005	Music Star	Livorno	<input checked="" type="checkbox"/>
000006	dsi-test	Firenze	<input checked="" type="checkbox"/>
000007	Music Discount	Milano	<input checked="" type="checkbox"/>
000008	Discomania	Cecina (LI)	<input type="checkbox"/>
000009	Rock Center	Rieti	<input checked="" type="checkbox"/>
000010	Riccardo	Salviano	<input checked="" type="checkbox"/>
000011	Francesco	La Cigna	<input type="checkbox"/>
000012	Alfonso	Pisa	<input type="checkbox"/>
000013	DSI	Firenze	<input type="checkbox"/>

The only new button in this window is the first (the "New" one), which allow the user to insert into the Server Database a new local distributor. Double clicking on a specific row, the complete set of information about the selected element will be shown.

Local distributors

Local distributor ID: 000007

Name: Music Discount

Location: Milano

Registered: ☒

IP address: 192.168.2.5

Connection URL: www.musicdiscount.mi.it

Key caching: ☒

Public key:

Payment systems: Credit card

Discount: 0 %

Description: Very nice

7 of 13

3.2.3.2 Search

You can seek for specific local distributor(s) by means of the related searching tool. To do so, select "Search Local Distributor.." from the "Distributors" menu, or press the search button in the local distributors list window (the second on the left), or click on the third button of the third group in the floating toolbar: the search window will appear.

Local distributor search

Standard Search...

Name:

Location:

Registered: ☒ Yes ☐ No

Additional Search...

Discount

Options

☐ Case sensitive

☐ Entire word

Standard Search...

Title:

Author:

Original language:

Classification language:

Genre:

Additional Search...

Date of composition

Piece tonality

It is possible to "join" Local Distributors and Objects to obtain a complex search: in this example, a search is prepared to look for all the local distributors where location is "Livorno" and discount is "10%" who have performed at least one transaction on objects whom author is "Lennon", the date of composition is "1973" and the piece tonality is "C". Pressing the "Hide" button it is possible to hide the part of the window related to WEDEL Objects, and therefore perform a search without involving Objects features. A further pressing of the "Objects" button will cause the showing of Objects features.

3.2.4 Transactions

A very important functionality of the Server Database is to manage the sale of permissions concerning WEDEL objects. To this purpose, the Server keeps trace of all the transaction performed by a registered local distributor on an object stored in the database.

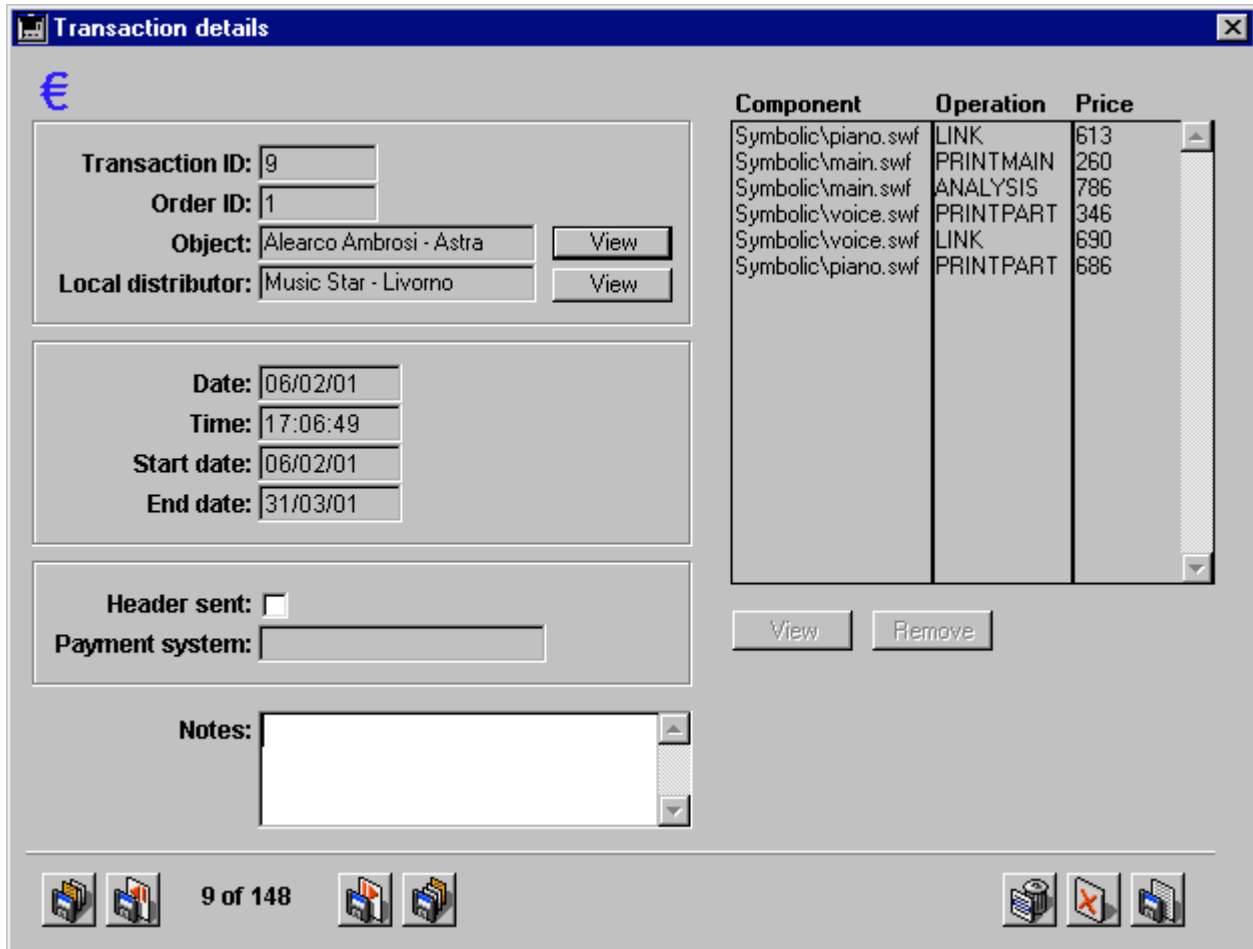
3.2.4.1 Open

To see all the transaction registered in the Server Database, select "Open transactions.." from the "Transactions" menu or click on the last button of the second group in the floating toolbar: the following window will appear.

Transactions					
€ Transactions					
ID	Object	Local distributor	Location	Date	Time
1	Variazioni su un minuetto di	Riccardo	Salmano	06/02/01	16:29:27
2	Concerto	Riccardo	Salmano	06/02/01	16:32:10
3	The Loneliness Of The Long	Riccardo	Salmano	06/02/01	16:33:32
4	Terzo quartetto	Riccardo	Salmano	06/02/01	16:40:11
5	Ring My Bell	Music City	Pisa	06/02/01	16:56:27
6	Ring My Bell	Music City	Pisa	06/02/01	16:59:22
7	Ring My Bell	Music Star	Livorno	06/02/01	17:01:50
8	Una lettera	Music Star	Livorno	06/02/01	17:04:21
9	Astra	Music Star	Livorno	06/02/01	17:06:49
10	Variazioni su un tema di Moz	Music Discount	Milano	06/02/01	17:17:15
11	Variazioni su un minuetto di	Music Discount	Milano	06/02/01	17:25:11
12	Variazioni su un minuetto di	Music Discount	Milano	06/02/01	17:29:04
13	Ring My Bell	Riccardo	Salmano	14/02/01	17:01:56
14	The Loneliness Of The Long	Riccardo	Salmano	15/02/01	10:51:16
15	Gold	Riccardo	Salmano	15/02/01	10:51:16
16	Cantata	Music Star	Livorno	16/02/01	12:53:01
17	Dalla corsa lenta	Music Star	Livorno	16/02/01	12:53:01

Language:

Double clicking on a specific transaction, all its details will be shown



Transaction details

Transaction ID: 9
 Order ID: 1
 Object: Alearco Ambrosi - Astra View
 Local distributor: Music Star - Livorno View

Date: 06/02/01
 Time: 17:06:49
 Start date: 06/02/01
 End date: 31/03/01

Header sent: ☐
 Payment system:

Notes:

Component	Operation	Price
Symbolic\piano.swf	LINK	613
Symbolic\main.swf	PRINTMAIN	260
Symbolic\main.swf	ANALYSIS	786
Symbolic\voice.swf	PRINTPART	346
Symbolic\voice.swf	LINK	690
Symbolic\piano.swf	PRINTPART	686

View Remove

9 of 148

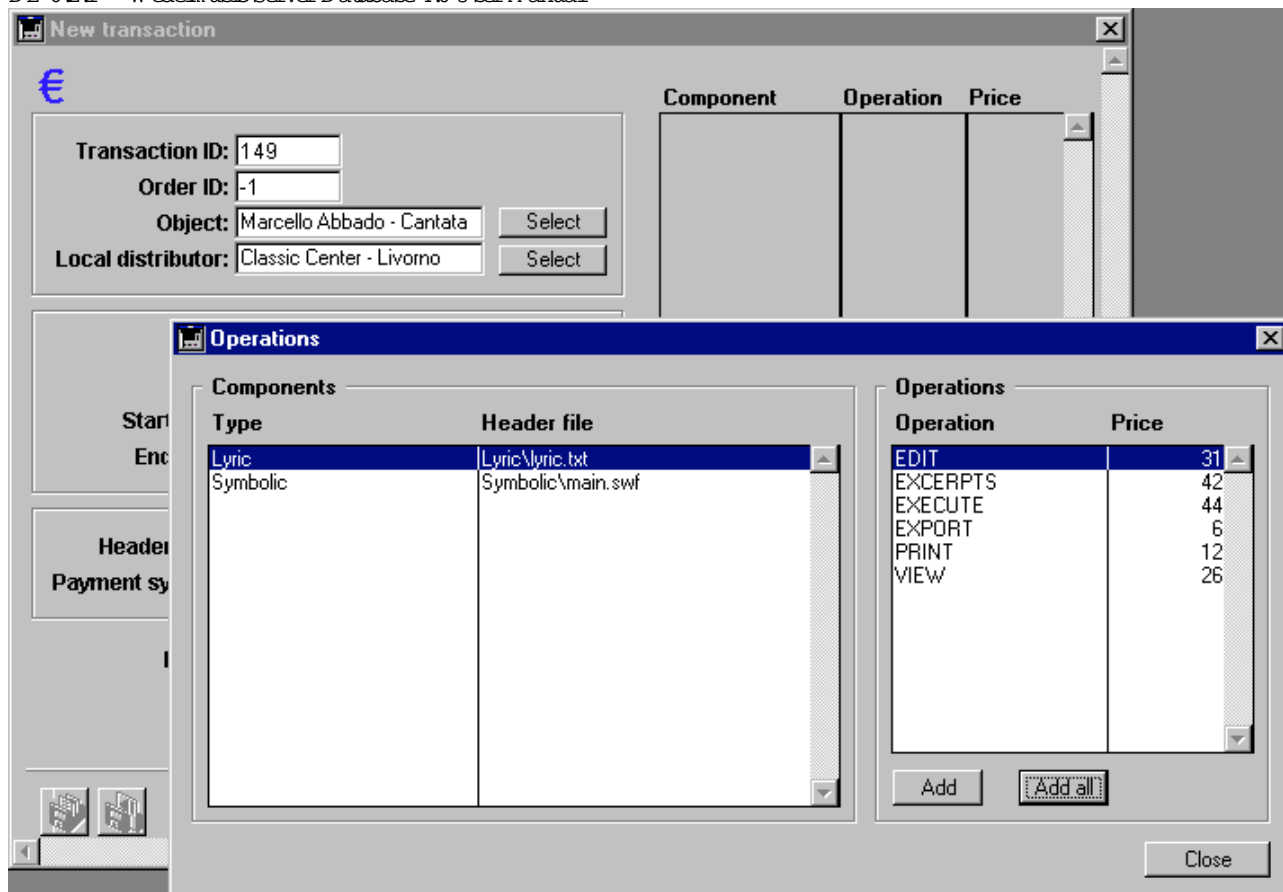
On the left side of the window there is the list of all the permission purchased by the local distributor on this object.

3.2.4.2 New

New transactions are registered automatically whenever an authorized local distributor purchase permissions on one or more components of a W EDEL objects stored in the Server Database. Though, the user could need to insert a new transaction manually (for example, if he foresees to accept transactions via traditional channels such as mail or phone). Clicking on the first button in the list window, the "New transaction" window will appear.

[illegible]

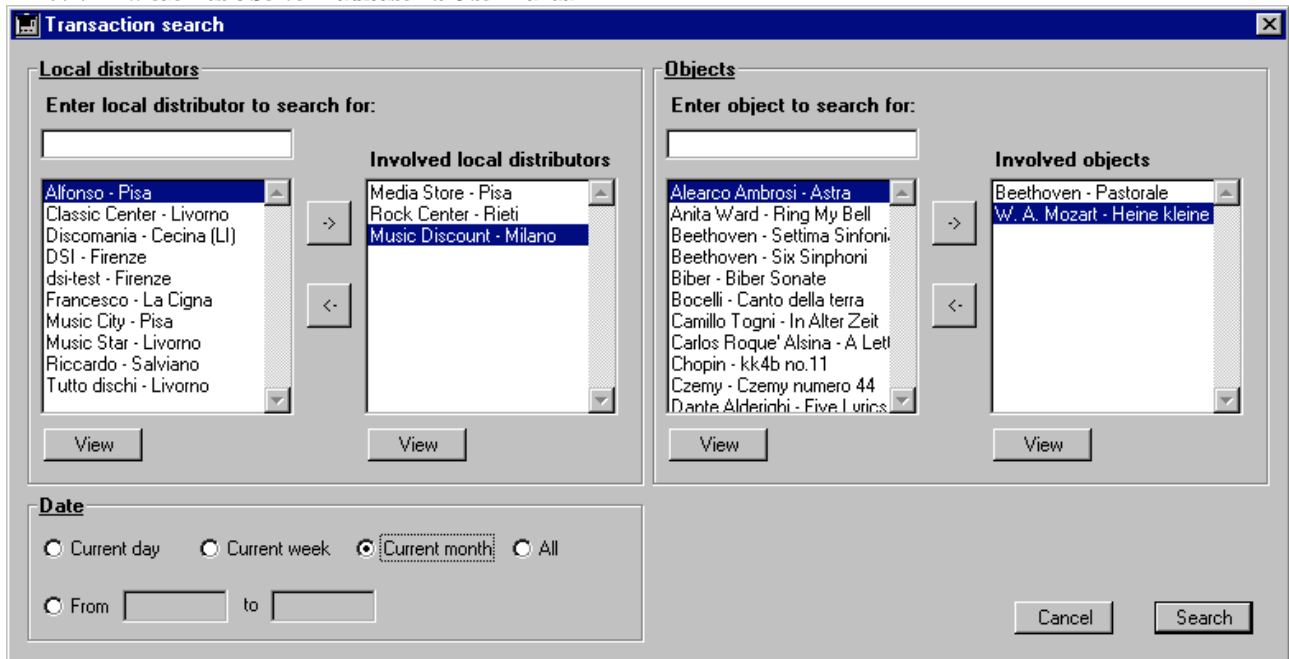
First, set the involved object and local distributor by clicking on the relative "Select" buttons: the corresponding list windows will appear, and you have to select the proper element. To add the desired permissions, press the "Add" button: the following window will appear.



In the components area, all the components of the selected object are listed, and all the permissions enabled for the selected component are shown in the "Operations" area. To add a new permission to your transaction, select it and press the "Add" button, or press the "Add all" button if you want to insert all the listed component. When you have done, close this window. To register this new transaction, push the "OK" button (the last on the right) in the "New transaction" window.

3.2.4.3 Search

If you want to reduce the set of shown transactions in the list window, you can use the relative search tool. Select "Search transaction..." from the "Transactions" menu, click on the "Search" button in the list window or press the last button of the third group in the floating toolbar. The following window will appear:



Transaction search

Local distributors

Enter local distributor to search for:

Alfonso - Pisa
Classic Center - Livorno
Discomania - Cecina (LI)
DSI - Firenze
dsi-test - Firenze
Francesco - La Cigna
Music City - Pisa
Music Star - Livorno
Riccardo - Salviano
Tutto dischi - Livorno

Involved local distributors

Media Store - Pisa
Rock Center - Rieti
Music Discount - Milano

Objects

Enter object to search for:

Aleandro Ambrosi - Astra
Anita Ward - Ring My Bell
Beethoven - Settima Sinfonia
Beethoven - Six Sinfonia
Biber - Biber Sonate
Bocelli - Canto della terra
Camillo Togni - In Alter Zeit
Carlos Roque Alsina - A Lett
Chopin - k44b no.11
Czemy - Czemy numero 44
Dante Alderighi - Five Lyrics

Involved objects

Beethoven - Pastorale
W. A. Mozart - Heine kleine

Date

☐ Current day ☐ Current week ☒ Current month ☐ All

☐ From to

View View View View

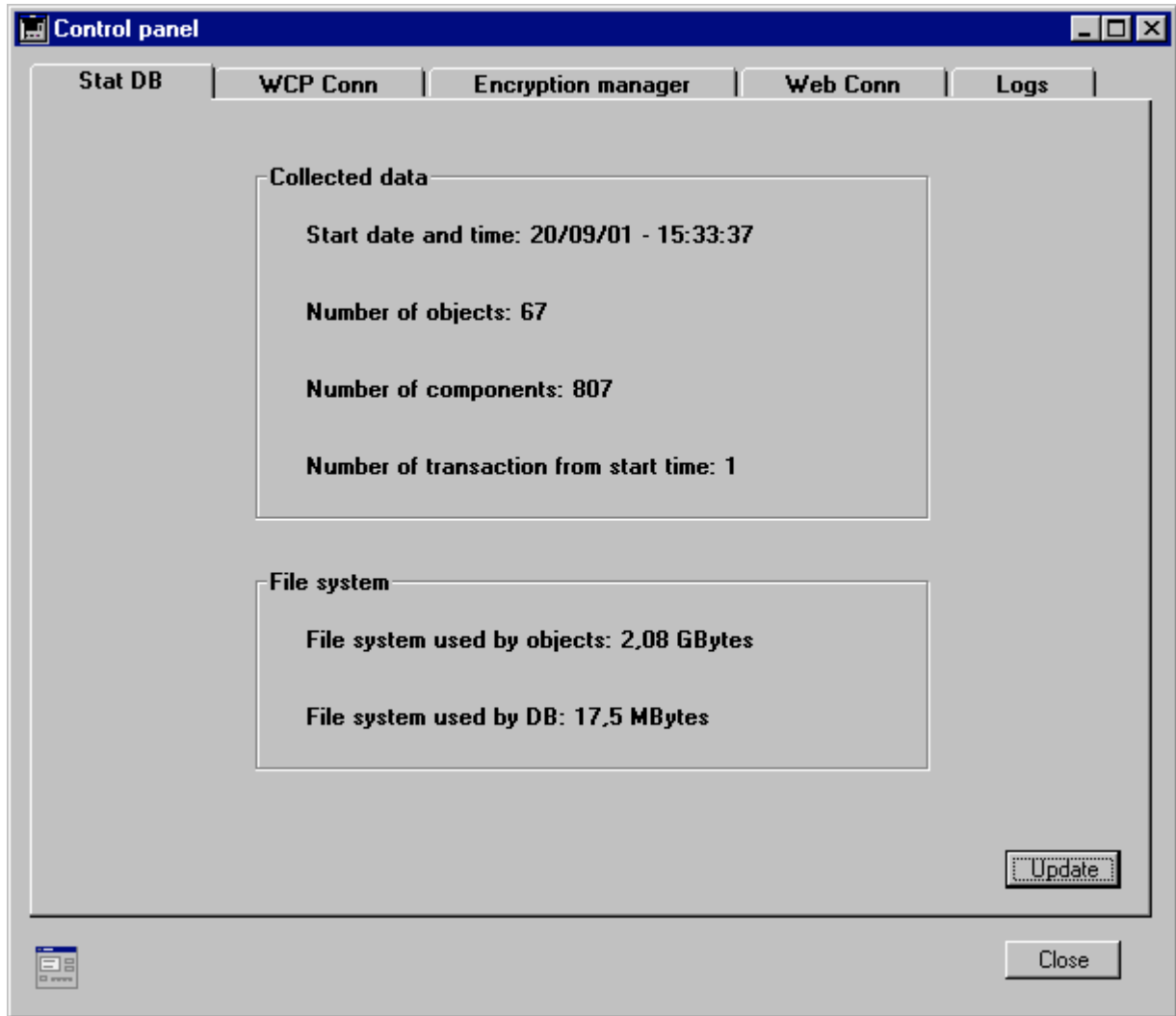
Cancel Search

In the local distributors area, select local distributors you want to involve in your search and move them in the right list by means of the arrow buttons, and do the same for the objects you are interested to. To let these lists empty means "consider all the local distributors" or "consider all the objects". Finally, set the dates to refine your request, and then push the "Search" button: the transactions list window will show (if any) all the transaction where the local distributor is in the list of the involved local distributors (if it is not empty), the object is in the list of the involved objects (if it is not empty) and the date matches the defined spell.

3.2.5 Other tools

3.2.5.1 Controlpanel

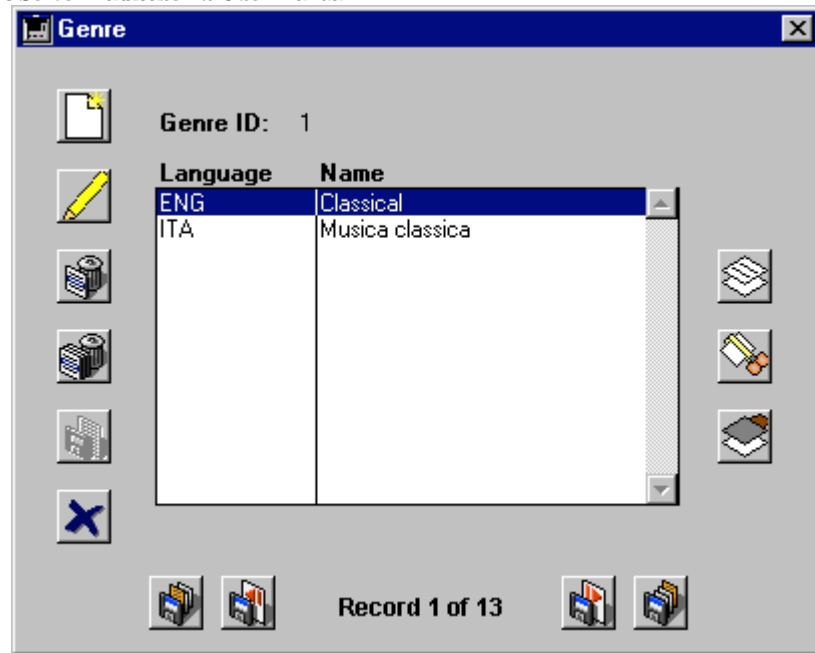
A very important tool to monitoring the Server Database activities is the controlpanel. To show it, click on the third button of the first group in the toolbar, or select "Controlpanel" from the "Tools" menu.



In the first panel, we have a brief summary of the data stored in the database and of the file system used. The other panels are concerned the communication management and control, and will be explained in the next chapter.

3.2.5.2 Genres

The Server Database can define a list of genres to associate to the stored W EDEL objects. Select "Genres.." from the "Tools" menu to open the related window :



Because we have a multi-language classification, we can give to any genre more than one name, according to the defined languages. You can:

- define a new genre or a new name for the selected genre by clicking the first button on the left;
- modify the selected name by clicking the second button on the left;
- delete the selected name by clicking the third button on the left;
- delete the selected genre by clicking the fourth button on the left;
- when you change the genre to an object, confirm the modification by clicking the fifth button on the left;
- close this window by clicking the sixth button on the left;
- copy, cut and paste names using the three buttons on the right;

Whenever you upload a W EDEL object, the Server Database checks if the genre associated to this object is already in its genres list. If not, you can maintain this genre and add it to the list or assign another genre to the object.

3.3 Communication Management and Control

A basic feature of the Server Database is the ability of manage and control communication with the local distributor. We can separate this communication in:

- non-secure communication, performed via Web;
- secure communication, performed via the dedicated W CP protocol.

The main tools to manage such a communication is the control panel, which has been touched upon in the previous chapter.

3.3.1 Web Communication

Since it is a non-secure communication channel, we cannot use it to perform transaction or deliver W EDEL objects, but we only use it to allow a remote local distributor to browse the Publisher's catalogue, perform searches and pre-order the objects he is interested to.

3.3.1.1 Web Communication Management

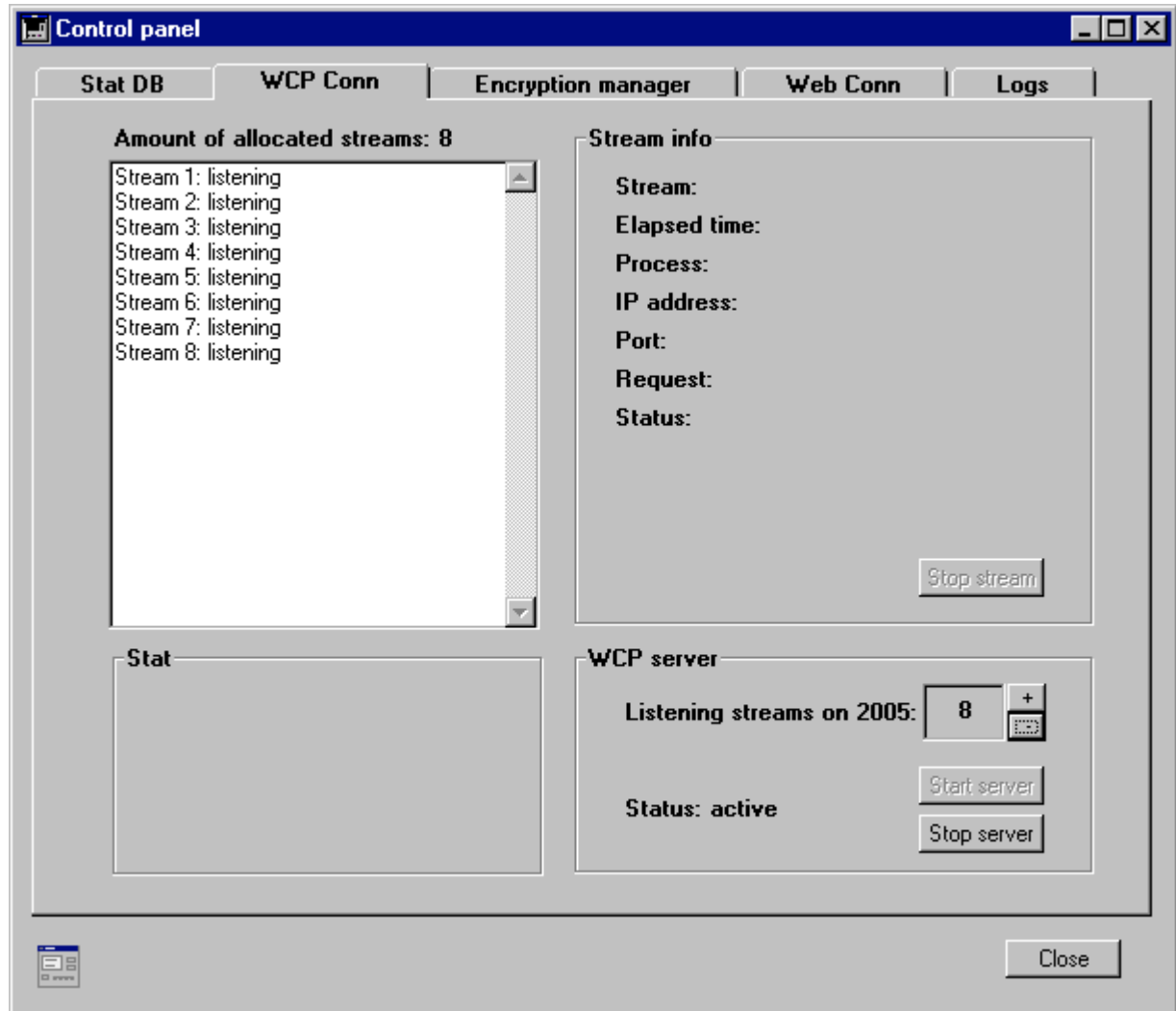
If you have the Tiny Web Server installed and it is not running, you can start it by means of the control panel. When you select the "Web conn" panel, the Server Database checks if a web server is active on your machine. If not, the "Start server" button is enabled: click on it to start the Tiny Web Server. Make sure that in the "Preferences" panel the "Web site root" and the "Tiny web server directory" are properly setted.

3.3.2 Secure Communication Channel (WCP)

The communication via the WCP protocol is considered as secure, so we can use it to perform transactions, deliver WEDEL objects and do all the operations that need a high level of safety.

3.3.2.1 Secure Communication Management

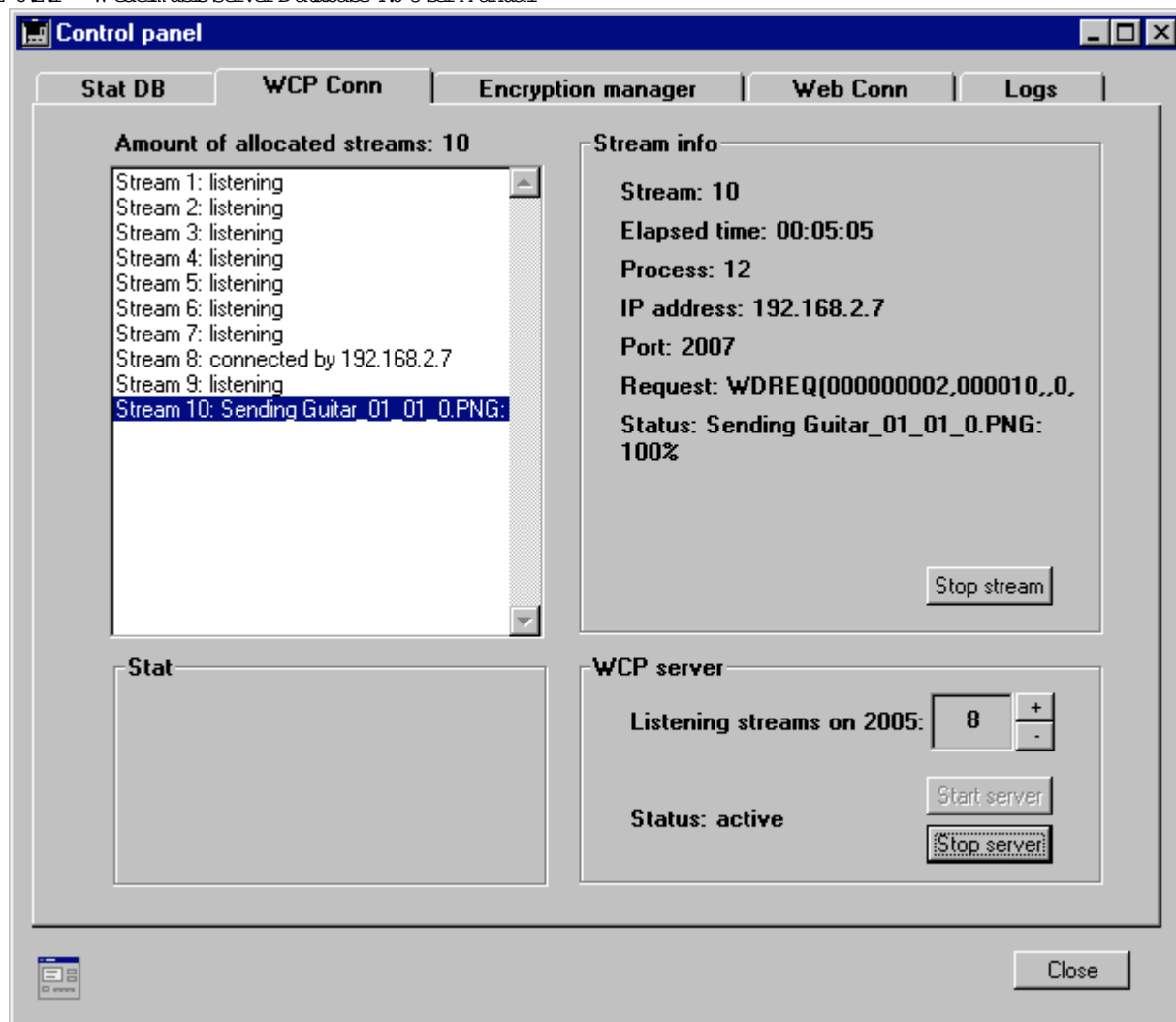
To manage the WCP communication, select the "WCP conn" of the control panel: you can see the WCP server activity at a glance.



On the top left, we can see the list of the streams used by the Server Database to accept requests from the authorized local distributors. By means of this panel we easily manage the resources to be assigned to this communication: in fact, in the "WCP server" area we can stop and restart the WCP server and increase or diminish the number of listening streams.

3.3.2.2 Secure Communication Control

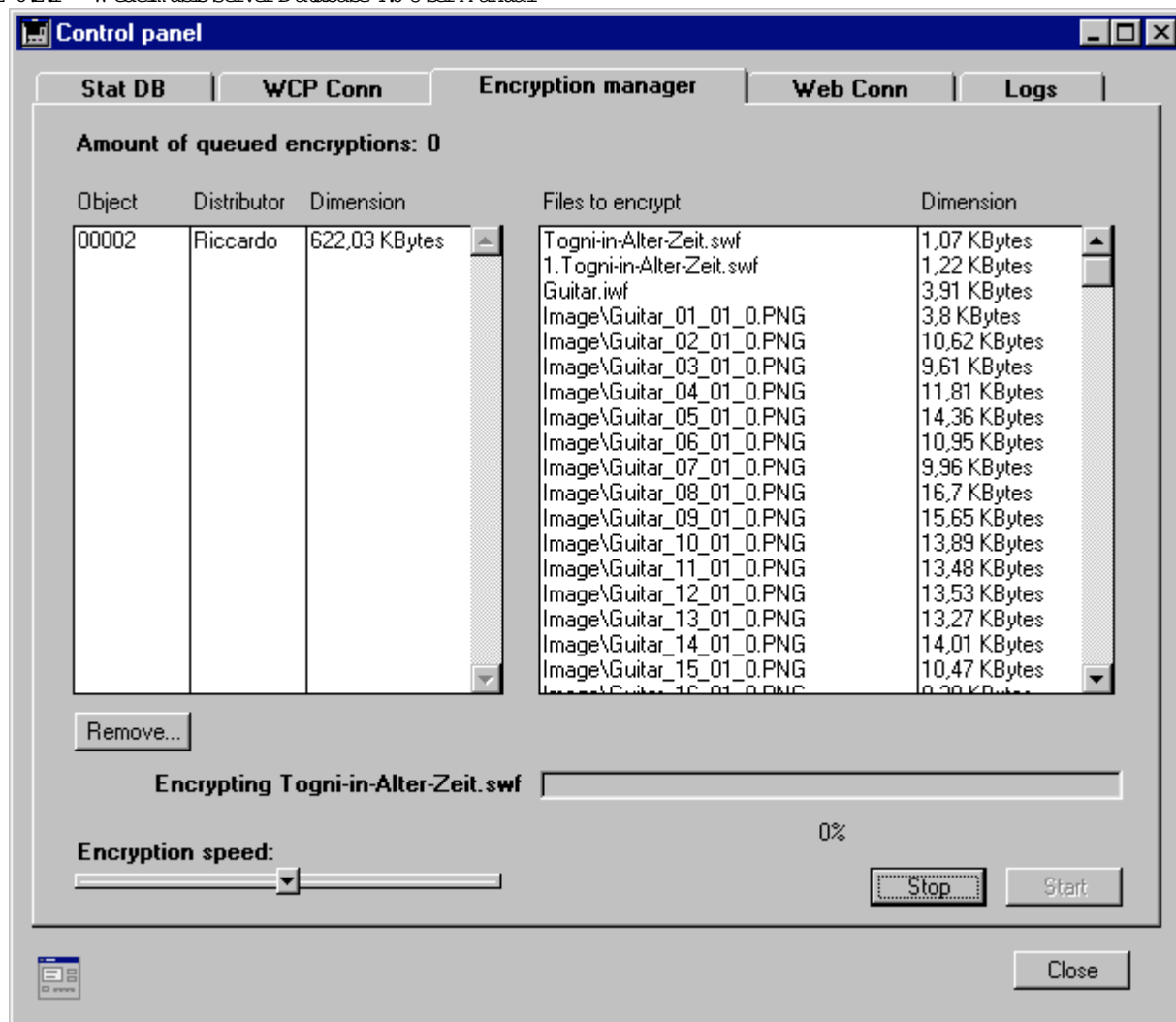
To control what is really happened with the WCP communication, in the "Stream info" area are shown some information about the selected stream.



In this example, we have 10 allocated stream for the WCP communications; streams 8 and 10 have accepted a connection from a local distributor. In particular, we can see that the stream 10 has accepted a connection from the machine with IP address 192.168.2.7 on port 2007, it is serving a WDREQ request and is sending the "Guitar_01_01_0.PNG" file. If we want, we can interrupt this connection by clicking on the "Stop stream" button.

3.3.3 Encryption manager

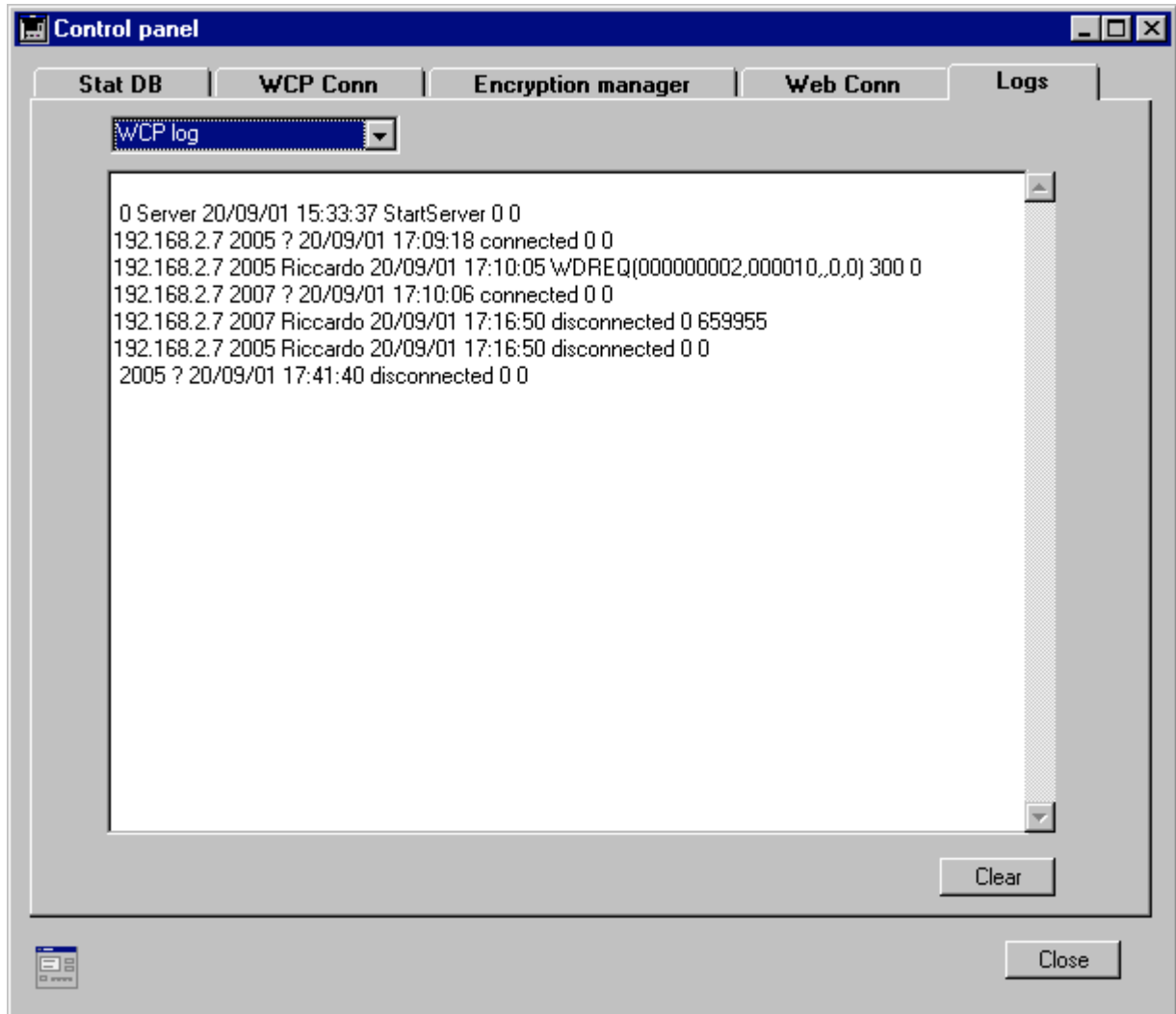
As the WEDEL objects are delivered watermarked and encrypted, the control panel allows to manage the watermarking and encryption activity of the Server by means of the "Encryption manager" panel.



The Server has a queue of the object to be prepared. Whenever a W EDEL object is to be delivered, the Server insert it in this queue. In this example, we have only one object in this queue, shown in the left list. In the right list, we can see all the files to be prepared belonging to that object. We can start and stop the watermarking and encryption activity and increase or its speed. This affects the performance of the other activities.

3.3.4 Log files

All the W CP server, Web server, uploading, watermarking and encryption activities are registered in specific log files. In particular, we have a log file for the W CP communication, a log file for the Web communication and a log file for the uploadings, watermarkings and encryptions performed. We can see a part of these file in the last panel of the control panel:



With the combo box on the top left, we can select the log we are interested to and see the last entries

A The Use Control Manager (UCM)

As a matter of fact, the Server Database does not communicate directly with the local distributors, for they are not esteemed as a completely trustable partner. Hence, at the local distributor side is to be installed a program that works as intermediary between it and the Server Database: the Use Control Manager (UCM).

A.1 What is the use of it?

As previously stated, the UCM module is the intermediary between the Server Database and the local distributor. It has to be installed at the local distributor side, and its duty is to receive a request from the local distributor, send it on to the Server Database, take the answer and forward it to the local distributor. The channel is the WCP protocol.

The reason why we use this program is to raise the security level of the communications and avoid a misuse of critical information, such as the keys to open the WEDEL objects, and to allow a more efficient management of the matters about permissions related to a delivered object.

In fact, whenever an object is to be opened, the WEDEL editor at the final user side has to send a key request to the Server Database, who checks the legitimacy of this request. To reduce the amount of traffic in the WCP channel, the Server can grant the "key caching" to the local distributor, that is the key for a particular object is stored at the local distributor side. This key is not recorded by the local distributor, but by the UCM , that is a trustable environment (it is a sort of "enclave" of the

Server Database placed at the local distributor side). So the key requests concerning that particular W EDEL object are managed directly by the UCM .

M oreover, it keeps trace of the operations a final user carries out upon the W EDEL objects.

A.1 System Requirements

The UCM acts as a little server to receive and manage requests from the local distributors, and as a client to forward these requests to the Server Database, so it requires a little less powerful system .

A.1.1 Hardware and Software Requirements

Processor	Pentium II 600 M H z, 128 K B cache
Hard Disk	The required Hard Disk space depends on the amount of objects to download. Good access time and transfer rate. A reasonably minimum requirement for the disk can be a UATA 66 disk with 2M B of internal buffer.
RAM	128 M B RAM
Operating System	W indow s N T W orkstation

A.1.2 Recommended system

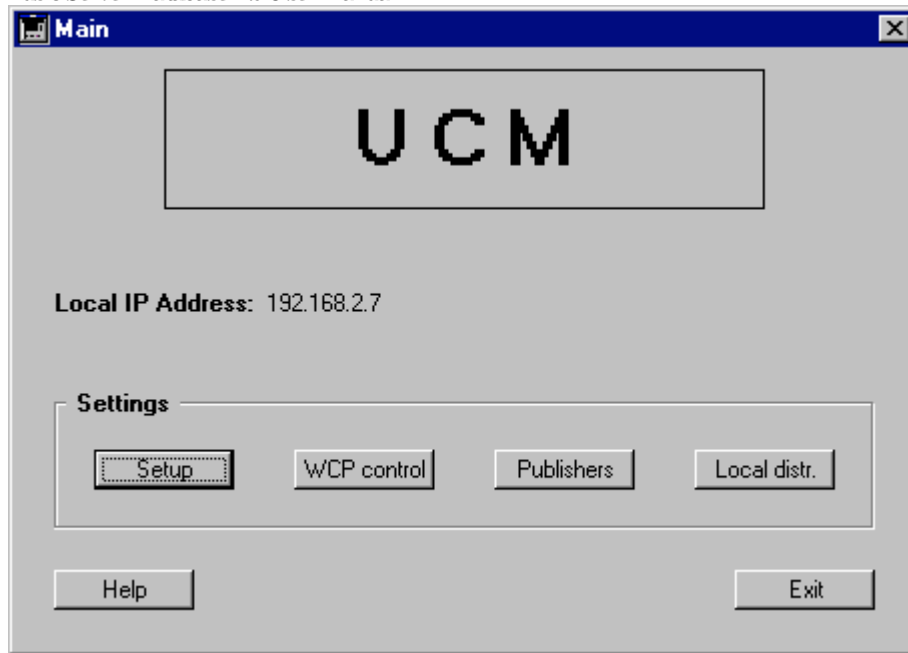
Processor	Pentium II 700 M H z, 128 K B cache
Hard Disk	Regarding the HD , if a huge amount of objects is to be stored, a FireWire set of hard disks is recommended.
RAM	256 M B RAM
Operating System	W indow s 2000 Server

A.2 Installing the UCM module

To install the UCM module, simply copy the W EDEL UCM directory in your computer and remove the read only property to the copied files.

A.3 Settings

W hen the UCM module starts, the "M ain" window is shown:



You have four types of settings, corresponding to the four buttons in the "Settings" area: Setup, WCP control, Publishers and Local distributors. The first time you want to modify the setting parameters, the UCM asks you to identify yourself with account and password. In fact, only an authorized (by the publisher) user can perform these changes: this identification avoids unauthorized people to improperly handle this module.

A.3.1 Setup

By means of the setup settings, you can define the following parameters concerning the WCP communication:

- Time-out (in seconds), that is the maximum time to wait to receive an answer from the Server Database.
- Start download maximum wait time (in seconds): whenever you want to download an object from the Server Database, the latter check if this object is already ready to be sent (that is, it has been watermark and encrypted). If not, the Server Database evaluates the time needed to prepare and begin to send the object and communicate it to the UCM. If this wait time is higher than the start download maximum wait time, the UCM stops the downloading process.
- Default number of listening streams, that is the amount of streams reserved for the UCM /local distributors communication by default.

A.3.2 WCP control

With the WCP control, you can stop and restart the communication between the UCM and the local distributors, and set the amount of listening streams to accept requests from the local distributors.

A.3.3 Publishers

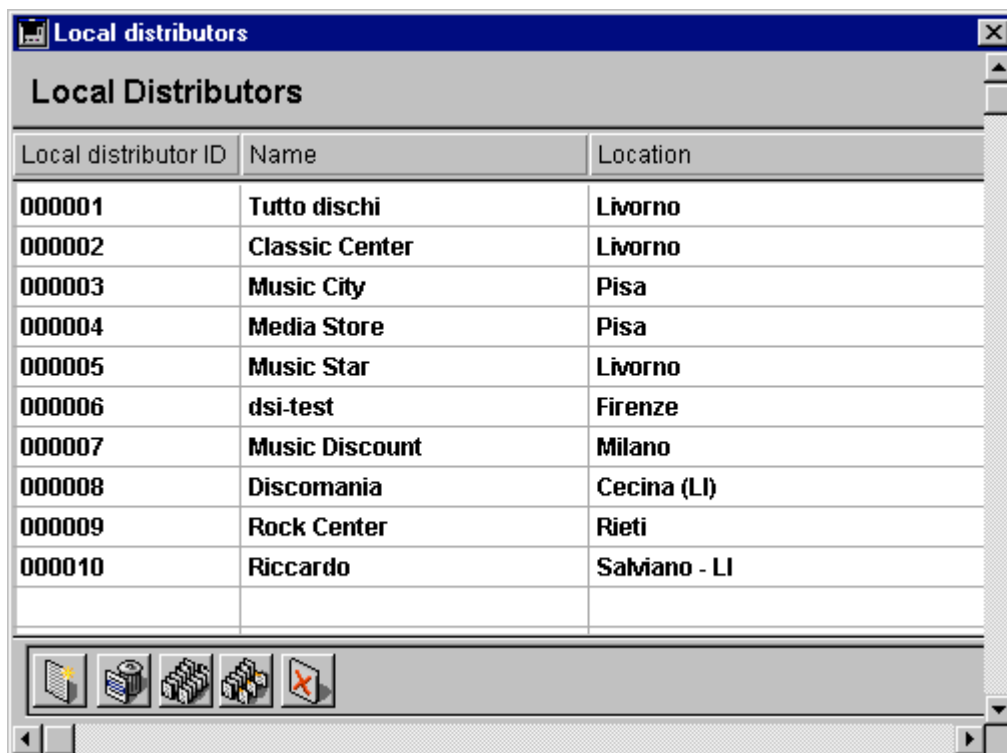
Clicking on this button, you open a window showing the list of publishers you can connect to.

[illegible]

You can insert new publishers, delete or modify the stored ones double clicking on the rows of this table.

A.3.4 Local distributors

The UCM can serve more than one local distributor. To this purpose, there is a window showing the list of local distributors which the UCM can accept requests from.



The screenshot shows a window titled "Local distributors" with a sub-header "Local Distributors". Below the header is a table with three columns: "Local distributor ID", "Name", and "Location". The table contains ten rows of data. At the bottom of the window, there is a toolbar with five icons: a document, a database cylinder, a server rack, a network switch, and a delete icon (a square with an 'X').

Local distributor ID	Name	Location
000001	Tutto dischi	Livorno
000002	Classic Center	Livorno
000003	Music City	Pisa
000004	Media Store	Pisa
000005	Music Star	Livorno
000006	dsi-test	Firenze
000007	Music Discount	Milano
000008	Discomania	Cecina (LI)
000009	Rock Center	Rieti
000010	Riccardo	Salviano - LI

Analogously, you can insert, modify or delete local distributors in the same way as the publishers.