

***interMedia* FAQ**

Q: What is *interMedia*?

interMedia is a set of platform services that provide for Oracle 10g management of multimedia data including images, audio, and video. Through the use of media datatypes, Oracle *interMedia* enables Oracle10g to manage and deliver image, audio, and video data in an integrated fashion with other enterprise information. *interMedia* provides the means to add media columns or objects to existing database tables, insert and retrieve multimedia data, and deliver it to web authoring tools and servers. *interMedia* provides plugins that enable Real Networks and Microsoft Windows Media Streaming Services to stream multimedia data from the database. *interMedia* is also integrated with JDeveloper and Oracle Portal enabling easy multimedia application development.

Q: Is Oracle Database up to the job of handling multimedia?

A large US based financial institution with terabytes of data in Oracle Database has a 0.4 second maximum response time to render images of checks on the Web. A US state government has scaled their road inventory image Oracle Database to upwards of 5 TB. The largest federal bank in Brazil has loaded 3000 check images per minute into Oracle Database. A Federal Reserve Branch keeps sensitive check images in Oracle Database for security. Be it scalability, capacity, performance, or security, Oracle Database is up to the toughest multimedia applications.

Q: What's the value of managing multimedia data in the database?

There are several benefits to managing media data in the database.

Secure and Synchronized: Unlike media managed in a file system, media managed in a database and its associated relational data are kept synchronized, are kept secure, and are managed together.

Ease of Location: By parsing out the metadata embedded in the multimedia data and using it for indexes, it is far easier to find the media being searched for.

Development and Operational Savings: Database management of media also results in application deployment and system operational savings, which can be passed on as customer cost savings.

Q: Do I have to buy a separate option or license to do it?

No. Oracle10g includes a component called *interMedia* that makes it possible to manage digital media. *interMedia* is a component of Oracle Database and is included in Oracle Database licensing.

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Q: What media formats are supported?

interMedia recognizes most of the popular desk top publishing and web media formats. Exemplary image formats include GIF, JPEG, PNG, and BMP. Exemplary audio formats include MP3, AU, WAV, MPEG. Exemplary video formats include REAL, ASF, AVI, MPEG. Consult *interMedia* Reference Manual for a complete list of supported formats. Note also that *interMedia* is extensible and it is possible to integrate support for additional formats.

Q: What is metadata?

Metadata is information about the data. In our case, it is embedded in the media and describes the media that is being managed. There are two types of metadata that we are concerned with: 1) format metadata and 2) application metadata. Format metadata typically includes information about the media such as how many pixels and scan lines are there in an image. Application metadata is information that an application might associate with a media object such as the name of the photographer of an image and the location it was taken.

interMedia extracts both format and application metadata for formats that it understands and makes them available for indexing making it easier to search for and find media objects.

Q: Where is the media stored?

interMedia makes it possible to store media in the database under transaction control, using blobs. Alternatively, media may be stored in operating system flat files, in web servers addressed with url's, and in specialty servers and referenced from the database. *interMedia* makes it possible to migrate media data between the database and flat files using import and export methods. The highest security is provided when the data is stored within the database.

Q: Can the media be stored compressed?

interMedia provides the ability to both compress and decompress media data for formats that it understands. The compression type depends upon the media format. See the *interMedia* Reference Manual for compression details.

Q: Can Oracle be used to manage a large amount of media?

Yes. A US state government system built to contain photographic images of state roadways has grown to over 5 TB in size. All of the images are stored under transactional control in the database. The photographic image database is used to keep track of road conditions and signage. A novel application that uses these images is a 'virtual drive' from some starting point to some ending point on the roadways. Today, the maximum size of an image, audio, or video is 4GB, and the maximum size of the Oracle10g database is measured in Exabytes (10^{15}).

Q: Is it possible to rapidly load a large media database?

The largest Federal bank in Brazil with over 7000 branches loaded upwards of 140 million images at rates of 3000 document images per minute with *interMedia*. The application involved putting personal financial statements on line for web access by customers. Load performance tests have shown that media data can be loaded into Oracle Database at near device speeds (disks).

Q: Is media stored securely using *interMedia*?

When the media (images, audio, and video) is stored within the database using *interMedia*, it is stored as securely as any other type of database data. A large US based financial institution stores check images in Oracle Database for security and legal archive reasons.

Q: Can web applications perform reasonably with media stored in the database?

A large US based financial institution with Terabytes of data in the database reports 0.4s maximum response time to render image of checks on the Web.

Q: Can I stream audio and video from the database?

Most media data is delivered to clients in batch mode. This means that the media is delivered altogether and cannot be processed until every bit of it arrives. Streaming means that media data can be output as soon as the first bits of it arrive. Thereafter the media is processed or output as it arrives, long before the last bits of it are sent from the server.

There are several streaming media servers on the market today. The two most prominent are Real Networks and Microsoft Windows Streaming Media Services. Both support streaming of multiple data formats including such formats as MPEG.

Q: Can I associate media data with traditional relational data?

With *interMedia*, you can type columns of relational tables as containing media. For example, you can take an existing human resources table that contains name, address, and other traditional data, and add an image column to contain a picture of an employee. Or you could take a product table and add a video column to show products in use. There is no limit on the number of media columns that can be added to a table. Through this mechanism, media can be easily associated with traditional, relational data.

Q: What computer languages can I use to develop multimedia database applications?

interMedia offers api's to the developer for many different languages including most 3GLs. *interMedia* in particular offers robust support for SQL and Java developers including those creating servlets and JSP applications.

Q: Can managing media in the database result in real cost savings for users?

A British online medical journal publisher, with prestigious customers such as the World Health Organization and Harvard Medical, realized nearly a 100 fold decrease in end user cost of access of the online publication compared to traditional paper journals. The journal's contents including all media are stored in Oracle and accessed there by various publication functions through the publication process.

Q: Are there any development tools that can expedite development of a media application?

Oracle has two powerful application development tools that work with *interMedia*. The first is JDeveloper a Java interactive development environment. Through the use of code wizards, JDeveloper makes it easy to develop Java servlet and JSP media enabled applications. Oracle also offers high level media development technology that works with JDeveloper such as the Business Components for Java (BC4J). The second tool, Oracle Portal, also uses wizards that make it easy to develop media enabled forms and reports.

Q: Why should I use *interMedia* versus long RAWs or BLOBs?

interMedia provides both an object and a relational interface. This makes it possible for applications that choose to store media in BLOBs to benefit from many of *interMedia* services. That said, there are several advantages to storing media in *interMedia* objects including:

- 1) The object type indicates what is stored in the column. Tools such as JDeveloper and Portal recognize the *interMedia* objects for what they are (image, audio, or video) and can act accordingly. With a straight BLOB, the tools do not know what is stored there.
- 2) Object methods can automatically extract metadata and populate the media object attributes, such as height, width, mimetype ...etc.
- 3) The objects offer convenience methods that can be applied to the objects, such as converting bmp to internet friendly JPEG or GIF, or to import from the file system or internet. (The scaling method is often used to create and store a thumbnail of an image for fast perusal.)
- 4) *interMedia* objects provide the ability to store the media internally (as BLOBs) or externally as operating system flat files and to migrate between them.

Q: Where can I get more information?

You can get *interMedia* documentation including the *interMedia* User's Guide, *interMedia* Reference Manual, and the *interMedia* Java Classes Reference Manual, sample code, and downloadable software from the Oracle Technology Network Website (OTN) at:

<http://otn.oracle.com/products/intermedia/index.html>