

# Motorola Case Study with Oracle Text

*June 2005*

# Motorola Case Study with Oracle Text



## **MOTOROLA GOVERNMENT & ENTERPRISE MOBILITY SOLUTIONS (GEMS)**

Motorola is a Fortune 100 global communications leader that provides seamless mobility products and solutions across broadband, embedded systems and wireless networks.

In your home, auto, workplace and all spaces in between, seamless mobility means you can reach the people, things and information you need, anywhere, anytime.

Seamless mobility harnesses the power of technology convergence and enables smarter, faster, cost-effective and flexible communication. Motorola had sales of US \$31.3 billion in 2004.

Motorola's Government & Enterprise Mobility Solutions (GEMS) unit is a leading provider of integrated radio communications and information solutions, with more than 65 years of experience in meeting the mission-critical requirements of public safety, government and enterprise customers worldwide.

It also is a leading provider of automotive electronics solutions and technology.

In 2003, it received the inaugural Interpol Outstanding Contribution Award for its services to the international law enforcement community. The Government & Enterprise group offers an extensive portfolio of solutions to meet growing public safety and security needs, including: interoperable two-way radio communications solutions; command and control solutions; identification and tracking solutions; information management of criminal justice and civil needs; and physical security and monitoring solutions.

## **BUSINESS DESCRIPTION**

The Motorola Biometrics Solutions division of the Government & Enterprise Mobility Solutions unit is a leading provider of automated fingerprint and palmprint identification systems, inkless live-scan stations, and mobile fingerprint capture solutions, and has been providing solutions to government and enterprise customers in more than 37 countries for more than 30 years.

## **PRINTRAK BIOMETRICS IDENTIFICATION SOLUTION**

The Printrak Biometrics Identification Solution (BIS) is an integrated suite of applications implemented by the Motorola Biometrics Solutions division. These

applications allow for the capture, processing, search and storage of fingerprints, palmprints, facial images and other biometric data.

Printrak BIS databases are capable of storing a variety of data:

- Fingerprints, palmprints, facial, iris images
- Signatures
- Audio clips
- Demographic and case information related to the persons fingerprinted
- Customer business process workflows
- Databases also support storing documents such as job applications and criminal investigation reports

An example Printrak BIS system stores approximately 10 million rows of searchable XML data averaging 2-3 KB in length with each row containing roughly 50 XML elements and is deployed on a dual CPU HP Integrity rx2600 server running Red Hat Linux 3.0.

## **ORACLE AT MOTOROLA BIOMETRICS SOLUTIONS DIVISION**

The Motorola Biometrics Solutions division has standardized on Oracle as the main database server for all customer deployments of the Printrak BIS. The first generation of Printrak BIS used Oracle 8i and the most recent generation is using Oracle 10g.

Since each customer requires a different schema for the demographic and case information they store, this data is stored in XML form for maximum flexibility. In addition, the metadata associated with the binary elements stored in the database is also stored in XML form to allow new types of elements to be stored without requiring changes to the database schema. Furthermore, certain data received from external interfaces with other agencies is also stored in raw XML form.

Oracle Text is used for its capabilities to automatically index XML data without prior knowledge of its underlying structure. This allows the Printrak BIS to be easily deployed in a variety of customer environments without excessive custom configuration and to seamlessly evolve as new data types are added to the system. For extra performance sections of XML can be excluded from indexing as well as entire rows based on user defined criteria.

Oracle Text is also used because of the high performance it provides during insert and update operations. A typical Printrak BIS system stores several million rows containing XML data with several thousand rows added or updated every day. An investigator using the system can search for cases that match the specified criteria and get the results within seconds.

In addition, some of the text searching capabilities that are unique to Oracle Text make it especially suitable for the investigative queries performed on Printrak BIS. Oracle Text is able to efficiently process queries with left hand side wildcards that would otherwise be very inefficient with another type of indexing scheme. It can also perform case insensitive queries without requiring changes to the application

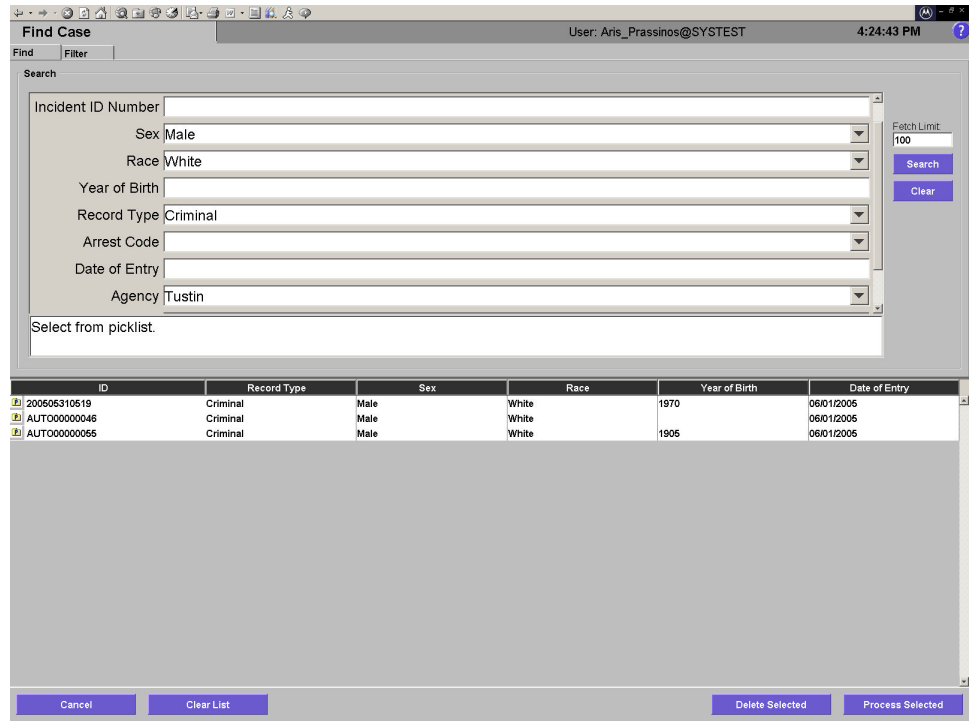


Figure 1. Motorola Printrak BIS Inquiry Screen Incorporating Oracle Text Query Capabilities. Oracle Text is especially suitable for investigative queries

## CONCLUSION

Oracle's XML and textual capabilities provide Motorola with the flexibility, performance, and functionality demanded by users of its Motorola Printrak BIS application. These capabilities, as well as other capabilities of Oracle Database 10g, make Oracle an ideal platform for deployment of database solutions to government and enterprise customers.

# ORACLE

Motorola Case Study with Oracle Text  
June 2005

Authors: Oracle and Motorola teams  
Contributing Authors:

Oracle Corporation  
World Headquarters  
500 Oracle Parkway  
Redwood Shores, CA 94065  
U.S.A.

Worldwide Inquiries:  
Phone: +1.650.506.7000  
Fax: +1.650.506.7200  
[www.oracle.com](http://www.oracle.com)

Oracle is a registered trademark of Oracle Corporation. Various product and service names referenced herein may be trademarks of Oracle Corporation. All other product and service names mentioned may be trademarks of their respective owners.

Copyright © 2005 Oracle Corporation  
All rights reserved.