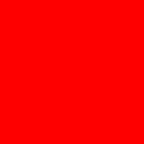


ORACLE®



ORACLE[®] **Oracle Rdb and Oracle Database on OpenVMS Product Update**

Kevin Duffy
Senior Director
Software Development
November, 2012



The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

Agenda

- Itanium Announcement Impact on Oracle Database on OpenVMS and Oracle Rdb
- Oracle Database on VMS Update
 - Support Dates
 - Currently Supported Versions
 - Versions Under Development
 - Roadmap
- Oracle Rdb Update
 - Support Dates
 - Customer Focus
 - Oracle Rdb Roadmap
 - Oracle Rdb 7.2.5 – Performance Highlights
 - Oracle Rdb 7.3

Oracle Resumes Integrity Porting

- **Statement issued on September 4, 2012:**

Previously, Oracle announced that it would stop developing new versions of its software on Itanium microprocessors. For example, that meant version 12c of the Oracle database due out in early 2013 would not be available on Itanium. However, a judge recently ruled that Oracle has a contract to continue porting its software to Itanium computers for as long as HP sells Itanium computers. Therefore, Oracle will continue building the latest versions of its database and other software covered by the judge's ruling to HP Itanium computers. Oracle software on HP's Itanium computers will be released on approximately the same schedule as Oracle software on IBM's Power systems.

<http://www.oracle.com/us/corporate/features/itanium-346707.html>

What does this mean for Oracle Database on OpenVMS?

- We will port 11g R2 Server
 - Version 11.2.0.4
- 11g R2 Oracle Client Kit on OpenVMS will proceed as previously planned but now as part of the Server port.
 - Version 11.2.0.4

Oracle 11g Support Dates

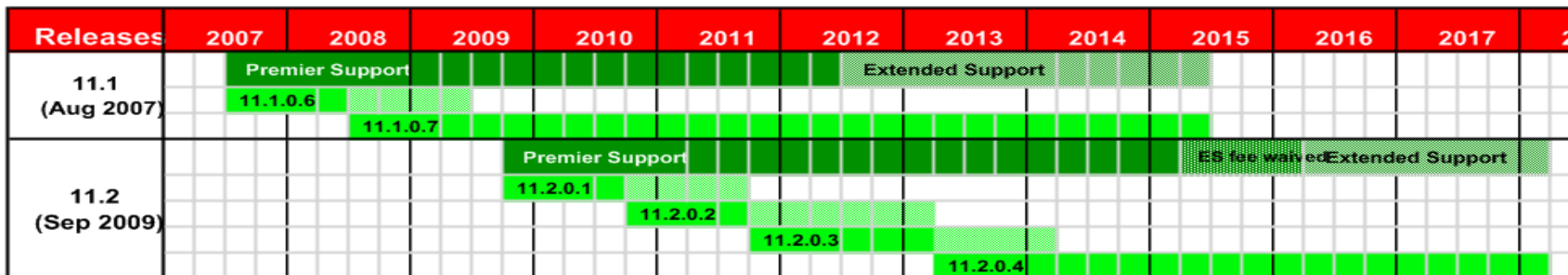
Release Schedule of Current Database Releases [ID 742060.1]

To Bottom

Modified: Aug 31, 2012 Type: ANNOUNCEMENT Status: PUBLISHED Priority: 1

Comments (0)

Database Patch Set Release Roadmap



Legend	
Releases	Premier Support
	Extended Support (Fee waived)
	Extended Support
Patch Sets	PSU/CPU's produced
	PSUs w/ CPU content only

(PSUs are released but new content is generally the same as in the CPU, ie security fixes)

How To Interpret The Roadmap

Major divisions of the Roadmap are years, and minor divisions are calendar quarters.

The timeline shows the two most current releases (11.1 and 11.2) and their patch sets. For each group there is a line at the top for the major release lifecycle, and

10g Support Dates

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Click to add to Favorites **Release Schedule of Current Database Releases [ID 742060.1]** To Bottom

Modified: Aug 31, 2012 Type: ANNOUNCEMENT Status: PUBLISHED Priority: 1 Comments (0)

Release	Patching Ends	Exceptions*								
11.2.0.4	31-Jan-2018	HP-UX Itanium: Patching ends Jan 2020. Beginning Feb 1, 2018, Sev 1 fixes only (no PSU or CPU will be produced).								
11.2.0.3	TBD⁶									
11.2.0.2	28-Feb-2013	End date extended beyond normal to include two additional PSU/CPU cycles.								
11.2.0.1	13-Sep-2011	Patch end date for Exadata is 30-Apr-2012								
11.1.0.7	31-Aug-2015⁷	HP-UX Itanium - Patching ends Dec 2015. Beginning Sep 1, 2015 Sev 1 fixes only (no PSU or CPU will be produced).								
11.1.0.6	18-Sep-2009									
10.2.0.5	31-Jul-2013⁷	HP-UX, Linux, and Windows Itanium - patching ends Dec 2015. Beginning Aug 1, 2013, Sev 1 fixes only (no PSU or CPU will be produced).								
10.2.0.4	31-Jul-2011⁵									
10.2.0.3	22-Feb-2009	<table border="1"> <tr> <td>IBM Linux on Power</td> <td>9-Apr-2009</td> </tr> <tr> <td>IBM Linux on System z</td> <td>16-May-2009</td> </tr> <tr> <td>Microsoft Windows Itanium (64-bit)</td> <td>2-May-2009</td> </tr> <tr> <td>HP Tru64 UNIX</td> <td>20-May-2009</td> </tr> </table>	IBM Linux on Power	9-Apr-2009	IBM Linux on System z	16-May-2009	Microsoft Windows Itanium (64-bit)	2-May-2009	HP Tru64 UNIX	20-May-2009
IBM Linux on Power	9-Apr-2009									
IBM Linux on System z	16-May-2009									
Microsoft Windows Itanium (64-bit)	2-May-2009									
HP Tru64 UNIX	20-May-2009									
10.1.0.4	30-Jan-2007									

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Local intranet 100%

Release Schedule of Current Database Releases [ID 742060.1]

- **Release** **Patching Ends**
11.2.0.4 31-Jan-2018
- **Exceptions***
 - HP-UX Itanium: Patching ends Jan 2020.
Beginning Feb 1, 2018, Sev 1 fixes only (no PSU or CPU will be produced).

Technical Support Policy Updates

- **Database 10gR2 – Itanium Platforms**

- Three (3) 10gR2 Itanium platforms will receive fee waiver for all 3 years of Extended Support, August 2010 – July 2013
- Platforms will also receive an extension to Extended Support. The extension will provide S1 fixes only, no CPUs.
- Additional Extended Support periods will be available for then-current Extended Support fees

Itanium Platforms	
Platform	Additional Extended Support: S1 Fixes Only
Linux Itanium	August 2013 – July 2015
Windows Itanium	August 2013 – July 2015
HP OpenVMS on Itanium	August 2013 – July 2017



Oracle Database on OpenVMS Update

Oracle OpenVMS Current Releases

- **Oracle 10.2.0.5.0 has shipped!!**
 - Available for both Integrity and Alpha
 - Must be installed in an existing Oracle Database 10g release 10.2.x home
 - OpenVMS 8.4 is the minimally supported OS version
 - To download the kit go to <https://support.oracle.com> and search for patch 8202632

Oracle OpenVMS Current Releases (cont.)

- **10.2.0.4**
 - Available for both Integrity and Alpha
 - New features
 - AUDIT_FILE_DESTINATION support
 - Improved Stat Pack Information
 - Multiple Database Write Processes (DBWR)
 - Database Vault
 - Will be in extended support though minimum of 1 CPU/PSU cycle after 10.2.0.5 is release on OpenVMS

Oracle OpenVMS Current Releases(cont)

- MAR (Mixed Architecture RAC) For 10.2.0.5 and 10.2.0.4
 - Will exist only for the 10.2 Alpha/Integrity
- Audit Vault Agent (10.2.3.2)
- Grid Control Agent (10.2.0.2)
 - VMS Patch Kit 6 available

Oracle MySupport OpenVMS Information

- **OpenVMS: Master Note for Oracle 10.2 on hp OpenVMS**
[\[ID 726914.1\]](#)
- **OpenVMS: Oracle Release 10gR2 Mixed Architecture (Multi-Home) CRS/RAC Installation on hp Itanium and Alpha**
[\[ID 785970.1\]](#)
- **OpenVMS: Getting started with the 10.2 Grid Control Agent on OpenVMS**
[\[ID 739445.1\]](#)
- **Installing AV Agent 10.2.3.2 on HP OpenVMS**
[\[ID 1111278.1\]](#)
 - **Master Note For Oracle Audit Vault**
[\[ID 1199033.1\]](#)

Projects in Development

- Oracle Database 11gR2
 - 11gR2 has started
 - Working with 11.2.0.2.0 initially but will release 11.2.0.4.0
 - Release anticipated TBD

OpenVMS Porting Environment (VPE)

- Itanium VMS only planned
- OpenVMS 8.4
- We are using OpenVMS sym-links to do our labeling and build
- Long file name used natively
- NFS support sym-links and long file names
 - 10.2.0.5.0 was built with these features
- Development environment will be the second release making use of symbolic soft links on OpenVMS
 - Source Control Access
 - Build Environment
 - QA Environment
 - Development

OpenVMS Porting Environment (VPE)

- 792117 Entries in 10.2.0.5.0
 - Total real files for product is 711109
 - Test support environment has ~ 200K files
 - Classic Source files ~ 45K files
 - Java Sources ~ 79K files
- 1111340 Entries in 11gR2 VMS labels
 - Total real files for product is 991549
 - Test support environment has ~ 300K files
 - Classic Source files ~ 75 K files
 - Java sources ~ 115K files
- 40% Growth

Files to Merge for 11.2.0.3.0

- A2B2 Consider as generally applicable to most platforms, has considerations for portability and OpenVMS usually has significant changes
 - 360 files
- C – Considered Operating System Dependant, can be significant code changes
 - 165 files
- Total 525 files to port for 11.2.0.3.0
- Anticipate at least the same for 11.2.0.4.0 when work starts

What will an Oracle 11g Client Kit Provide to OpenVMS

- Support to Oracle 12 (possibly later releases)
- Standard Supported client tools (next slides)
- Upgraded Security Functionality
- Gives you the ability to continue to run your application on VMS while connecting to the database server platform of your choice (either to a VMS server or other platforms supported by Oracle).

Client / Server / Interoperability Support Between Different Oracle Versions

Client Version	Server Version												
	11.2.0	11.1.0	10.2.0	10.1.0	9.2.0	9.0.1	8.1.7	8.1.6	8.1.5	8.0.6	8.0.5	7.3.4	
11.2.0	Yes	Yes	<u>ES #7</u>	No	<u>LES #5</u>	<u>No #3</u>	<u>No #3</u>	<u>No #3</u>	<u>No #3</u>	<u>No #3</u>	<u>No #3</u>	<u>No #3</u>	
11.1.0	Yes	Yes	<u>ES #7</u>	<u>ES #6</u>	<u>LES #5</u>	<u>No #3</u>	<u>No #3</u>	<u>No #3</u>	<u>No #3</u>	<u>No #3</u>	<u>No #3</u>	<u>No #3</u>	
10.2.0	<u>ES #7</u>	<u>ES #7</u>	ES	ES	<u>LES #5</u>	No	Was	<u>No #3</u>	<u>No #3</u>	<u>No #3</u>	<u>No #3</u>	<u>No #3</u>	
10.1.0(#4)	<u>ES #6</u>	<u>ES #6</u>	ES	ES	LES	Was	<u>Was #2</u>	<u>No #3</u>	<u>No #3</u>	<u>No #3</u>	<u>No #3</u>	<u>No #3</u>	
9.2.0	<u>LES #5</u>	<u>LES #5</u>	<u>LES #5</u>	LES	LES	Was	Was	No	No	Was	No	<u>No #1</u>	
9.0.1	No	No	No	Was	Was	Was	Was	Was	No	Was	No	Was	
8.1.7	No	No	Was	Was	Was	Was	Was	Was	Was	Was	Was	Was	
8.1.6	No	No	No	No	No	Was	Was	Was	Was	Was	Was	Was	
8.1.5	No	No	No	No	No	No	Was	Was	Was	Was	Was	Was	
8.0.6	No	No	No	No	Was	Was	Was	Was	Was	Was	Was	Was	
8.0.5	No	No	No	No	No	No	Was	Was	Was	Was	Was	Was	
7.3.4	No	No	No	No	Was	Was	Was	Was	Was	Was	Was	Was	

11g Client Kit Contents

- Oracle SQLJ
- Oracle Database Utilities
- Oracle Java Client
- SQL*Plus
- Oracle JDBC/THIN Interfaces
- Oracle Internet Directory Client
- Oracle Call Interface (OCI)
- Oracle Programmer
- Oracle XML Development Kit
- Oracle Advanced Security
- Enterprise Manager Minimal Integration
- OLAP Analytic Workspace Manager and Worksheet
- Oracle Net

11g Client Kit Contents (cont.)

- Oracle Connection Manager
- Oracle Net Listener
- Oracle Multimedia Client Option
- Oracle ODBC Driver
- Oracle Clusterware High Availability API
- Oracle SQL Developer
- Oracle Scheduler Agent
- Oracle Services For Microsoft Transaction Server
- Oracle Administration Assistant for Windows
- Oracle Counters for Windows Performance Monitor
- Oracle Objects for OLE
- Oracle Provider for OLE DB
- Oracle Data Provider for .NET
- Oracle Providers for ASP.NET

Patches for Oracle Databases

- **PSU – Patch Set Update (recommended bug fixes + security fixes)**
 - Patch Set Updates are released every January, April, July and October (on the second Tuesday of the month)
- **CPU – Critical Patch Update (security fixes only)**
 - ALL CPU patches for OpenVMS platforms are “On Request”
- **One-off Patches**
- **Generic Patches**



Oracle Rdb Update

Rdb Product Family Lifetime Support Dates

	General Availability	Premier Support Ends	Extended Support Ends	Sustaining Support Ends
Rdb 7.0	Oct 1996	Aug 2007	Aug 2009	Indefinite
Rdb 7.1	Jul 2001	Dec 2007	Dec 2010	Indefinite
Rdb 7.2	Jan 2006	Jul 2014	Jul 2017	Indefinite
Rdb 7.3	Mar 2011	Mar 2016	Mar 2019	Indefinite

See: <http://www.oracle.com/us/support/library/lifetime-support-technology-069183.pdf>

Rdb Product Family Releases Since March, 2011

- Rdb 7.2.5.2 Update 1, October, 2012
- Rdb 7.2.5.2, July, 2012
- Rdb 7.2.5.1, March, 2012
- Rdb 7.2.5, June, 2011
- CODASYL DBMS 7.2.5, July, 2011
- SQL/Services /OCI Services 7.3.1.1, May, 2012
- Oracle Rdb JDBC 7.3.1, March, 2012
- Oracle Rdb JDBC 7.3.0.2 September, 2011
- ORDP.NET 7.3.2.2, May, 2012
- ORDP.NET 7.3.2.1, Sep, 2011
- ORDP.NET 7.3.2.0, May, 2011
- ODBC 3.3.2.3, April, 2012
- ODBC 3.3.2.2, November, 2011
- ODBC 3.3.2.1, April, 2011
- Updated SQL Reference Guide, May, 2012
(http://download.oracle.com/otndocs/products/rdb/pdf/sql_ref_v7252_part1.pdf)

Rdb Marketing Focus

- Focus on meeting our customers' needs
- [Rdb Web page](#), Rdb Web Journal, MetaLink, OTN
- Rdb management personal customer visits /meetings
 - Well over 100 per year
- Events
 - Oracle OpenWorld
 - Oracle Users' Group
- **Technical Forums (2013)**
 - Burlington, MA USA, March 21-22
 - Redwood Shores, CA, Oct 7-8
 - Asia, Australia and European dates being planned

Oracle Rdb V7.2.5.2 (Update 1)

- V 7.2.5.2 (Update 1), TBD
 - Fix to Ranked Indices
 - In rare cases an INSERT or UPDATE of a SORTED RANKED index can leave the index incomplete. The reported problem was caused by a cascading node split upon an INSERT. That is, an INSERT caused the node to split and that action caused the parent node to split, and so on up the index. The subsequent verify of the index using RMU/VERIFY/INDEX/DATA reported the missing key values which shows that a subtree of the index was not correctly incorporated into the index tree.

Oracle Rdb V7.2.5.2

- V 7.2.5.2, July, 2012
 - New Prefix Added to Logical Name Created by the Log Recovery Server
 - Now a prefix has been added to this logical name to identify it as being created by the Rdb or DBMS LRS server when database replication is started. The new prefix for this logical name is "RDM\$LRS" for Rdb.
 - New data values added to the following Information Tables:
 - RDB\$CACHES
 - RDB\$DATABASE_ROOT
 - RDB\$DATABASE_JOURNAL
 - Maintenance
 - e.g Wrong results for some zig-zag match queries

Oracle Rdb V7.2.5

- V 7.2.5.1, March, 2012

- New Features

- New RMU Options file to modify the Row Cache Backing Store Directories
 - New RMU/REPAIR option file to initialize database snapshot files
 - Show Statistics enhancements

- Maintenance

- V 7.2.5.0, June 2011

- Significant release including many new features
 - Some internal re-structuring for performance

Memory usage OpenVMS Virtual Address Space

- 32-Bit addressing
 - P0 – 1gb process private
 - P1 – 1gb process private
 - S0S1 – 2gb system-wide shared space
- 64-bit addressing
 - 8 TB **minimum**
 - P2 – Process private
 - S2 – System-wide shared space

V 7.2.5 Performance: Memory Usage Monitor Memory Management Enhancements

- Prior to 7.2.5, Oracle Rdb Monitor (RDMMON) process would map each database global (TROOT) section into P0 virtual address space.
- This could consume a significant portion of the P0 space and fragmentation could lead to the Monitor not able to open a database.
- RDMMON process now maps database global sections (those that use SHARED MEMORY IS PROCESS or SHARED MEMORY IS PROCESS RESIDENT) into 64-bit P2 virtual address space.
- RDMMON itself is also mapped into P2 to reduce P0 space, this is for Integrity servers only.

V 7.2.5 Performance: Memory usage Sort restructuring

- Previously large SORT data structures were allocated in P0 space
- Many queries perform many SORT operations
 - ORDER BY
 - UNION DISTINCT
 - GROUP BY
 - DISTINCT
- Each “sort” requires own context and structures
- These data structures have now been moved to P2 space

V 7.2.5 Performance: Memory usage Quick Sort restructuring

- Simple QSORT interface is used for small data sets
- Introduced in Rdb V7.2 to speed small sorts
- Controlled using two logical names
 - RDMS\$BIND_MAX_QSORT_COUNT controls maximum number of rows
 - RDMS\$BIND_MAX_QSORT_BUFFER controls total memory used to buffer sort rows
 - Used together to manage VM usage
- NEW: Moved buffers to P2 space
- Default threshold changed to allow larger sort sets

V 7.2.5 Performance: Memory usage Quick Sort restructuring

- buffer increased from 20,000 bytes to 409,600 bytes.
- RDMS\$BIND_MAX_QSORT_COUNT has been increased to **5,000** from 63
- RDMS\$BIND_MAX_QSORT_BUFFER is no longer used
- Should allow more queries to avoid setup overhead for SORT32 interface

V 7.2.5 Performance: Memory usage RDMS\$BIND_WORK_VM and related buffer

- Used to tune “temporary relation” and “zig-zag” strategy
- Intermediate results are written to virtual memory up to this limit
- Then it will overflow to a temporary file (controlled by the logical RDMS\$BIND_WORK_FILE)
- Each occurrence in a query will use a separate buffer
- Move from P0 space to P2 space.
- Default is increased 10,000 bytes to 100,000 bytes,
- The maximum value is 2,147,483,647(2GB).

V7.2.5 Performance: Reduced CPU Usage

- Most changes targeted at application running on IA64 or will have a greater effect on IA64
- Improved code sequences for:
 - Integer and Floating Point Arithmetic
 - Floating Point Comparison Operations
 - Floating Point Conversion Operations

Oracle Rdb 7.3

- Security
 - Transparent Data Encryption
 - Database Vault
- SQL
 - Oracle SQL Compliance
- Optimizer
 - Performance
- SQL Services/OCI Services 10.2.0.5 upgrade
- JDBC Upgrades
- Oracle Rdb Developer Tools for Visual Studio
- SQL Developer for Oracle Rdb Upgrades
- New GUI for SQL/Services, JDBC and Oracle Rdb Developer Tools for Visual Studio Management

Database Vault

- Changes the way Rdb handles OpenVMS privileges
- ALTER DATABASE ...
DATABASE VAULT IS ENABLED;
- Requires SECURITY privilege to enable
- No longer inherit overrides from current system user
- ***WARNING*** Ensure there is a SECURITY user defined in the database because once DATABASE VAULT is enabled you can not use a OpenVMS privilege to change it externally

Encryption

- Customer Demand for PCI-DSS Compliance
 - Standard Defined by the PCI Security Council
 - Founding Members are: American Express, Discover, JCB International, MasterCard, Visa
- Design and Implementation Guided By Oracle 10g & 11g Transparent Data Encryption (TDE)

Transparent Data Encryption

- Table data is encrypted at-rest
- New ENCRYPTION USING clause for CREATE STORAGE AREA
- Decryption requires KEY value to be specified by RMU/OPEN
- Key Management
 - Oracle Wallet Manager
 - Middle-Tier Deployment
- Status
 - Prototype running
 - Investigating impact on all database and utility operations

Encryption Services Available Today

- Full encryption services provided by OpenVMS
- Used by ENCRYPT DCL command, BACKUP and also by RMU /BACKUP
- Can be called by applications
- For column data encryption create external functions to access these OpenVMS services
- Use RDB_CYPHER.B32 from SQL\$SAMPLE as a starting point to encrypt column data

7.3.1 SQL Features

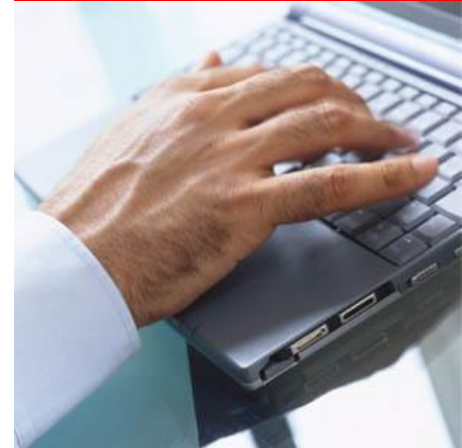
- **Support for SQL2011 dialect**
- **ROWNUM**
 - For each row returned by a query, the ROWNUM pseudocolumn returns a number indicating the order
- **REPLACE**
 - SQL Replace Replaces all occurrences of a specified string value with another string value.
- **ROW_INSERT_COUNT, ROW_UPDATE_COUNT, ROW_DELETE_COUNT**
 - Track individual actions
- **Nullability**
 - e.g. ALTER TABLE NULL
- **Verify & Triggers**
 - Performance enhancements

7.3.1 Features (continued)

- Convert
 - Performance enhancements
- New Segmented String Compression Support
- RMU LOAD
 - Support for CSV format
- MOD and SQRT Functions as builtins
- Reserve Range in Storage Maps

Connectivity: Supported protocols

- Oracle SQL/Services
- OCI Services for Oracle Rdb
- Oracle ODBC Driver for Rdb
- Oracle JDBC for Rdb
- Oracle Rdb Developer Tools for Visual Studio



SQL/Services

- 7.3.1.1, May, 2012
 - Symbol Tables Added For SQLSRV_NATCONN73.EXE & RMUEXEC73.EXE
 - Enhanced Help Text for Error Messages
 - Reporting More Information About Client Connections Flagged As Intruders
 - Text Displayed For SQLSRV\$_SM_NOSUCHDISP Message Has Been Enhanced
 - Improved SYS\$HELP:SQLSRV_MESSAGES73.TXT Formatting and Context
 - Updated Oracle SQL/Services Server Configuration Guide
 - Updated Help for SQLSRV_MANAGE
- 7.3.1, March, 2011
- 7.3.0.3, May, 2010

Oracle ODBC Driver for Rdb

- 3.3.2.3, April, 2012
- 3.3.2.2, November, 2011
- 3.3.2.1, April, 2011
- Supported Windows
 - Windows 32bit
 - Windows 7, XP, Vista, Server 2008, Server 2003, 2000,
 - Windows 64bit
 - Windows 7 XP, XP X64, Vista X64, Server 2008 X64, Server 2003 X64

Oracle Rdb JDBC Releases

- 7.3.1.,, March, 2012
 - New Features
 - Performance
- 7.3.0.2 – September, 2011
- 7.3.0.1 – February, 2011
- 7.3 – February, 2010
- 7.2.5.5 – December 2009
- 7.2.5.4 – September 2009
- 7.2.5.3 – June 2008



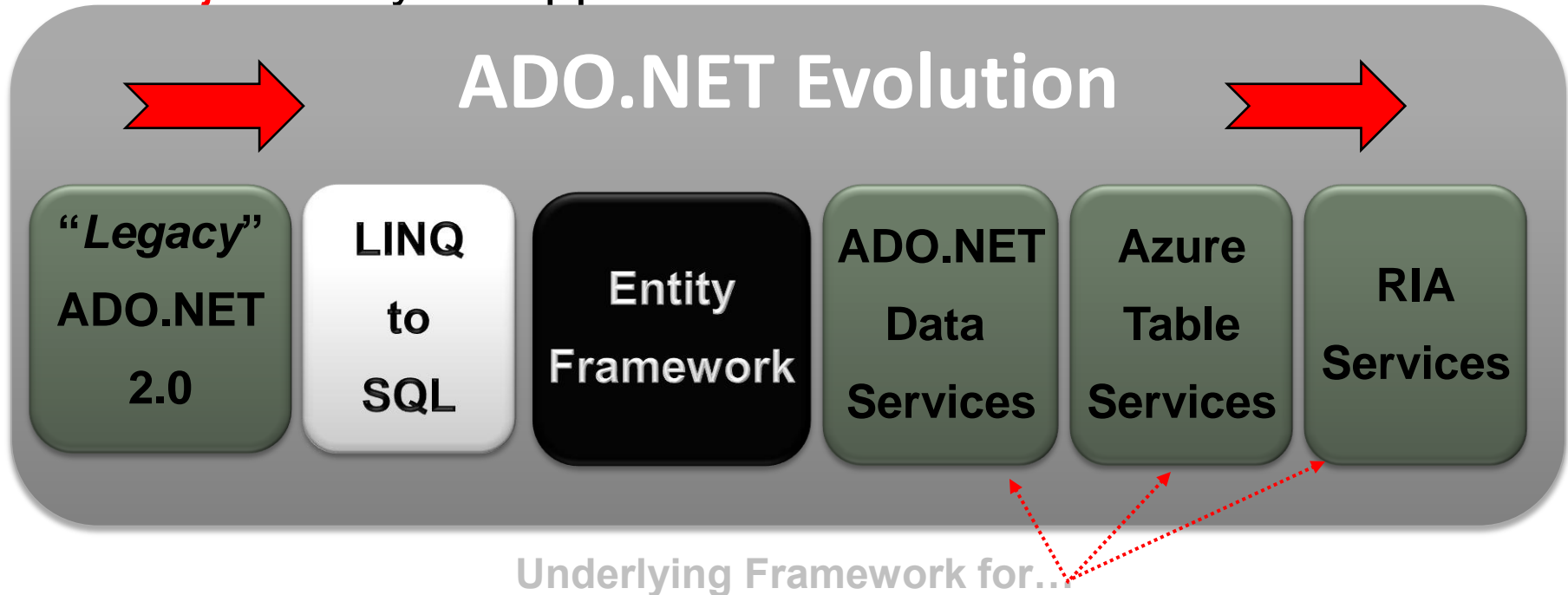
Oracle Rdb Developer Tools for Visual Studio

- 7.3.2.2, May 2012
 - Fixes Entity Framework related connection issues when using SQL/Services for connectivity rather than JDBC
- 7.3.2.1, September, 2011
 - Entity Framework Support
 - Performance
 - Maintenance
- 7.3.2 , May, 2010
- 7.3.1.1, December, 2009
- 7.3.1, February, 2009

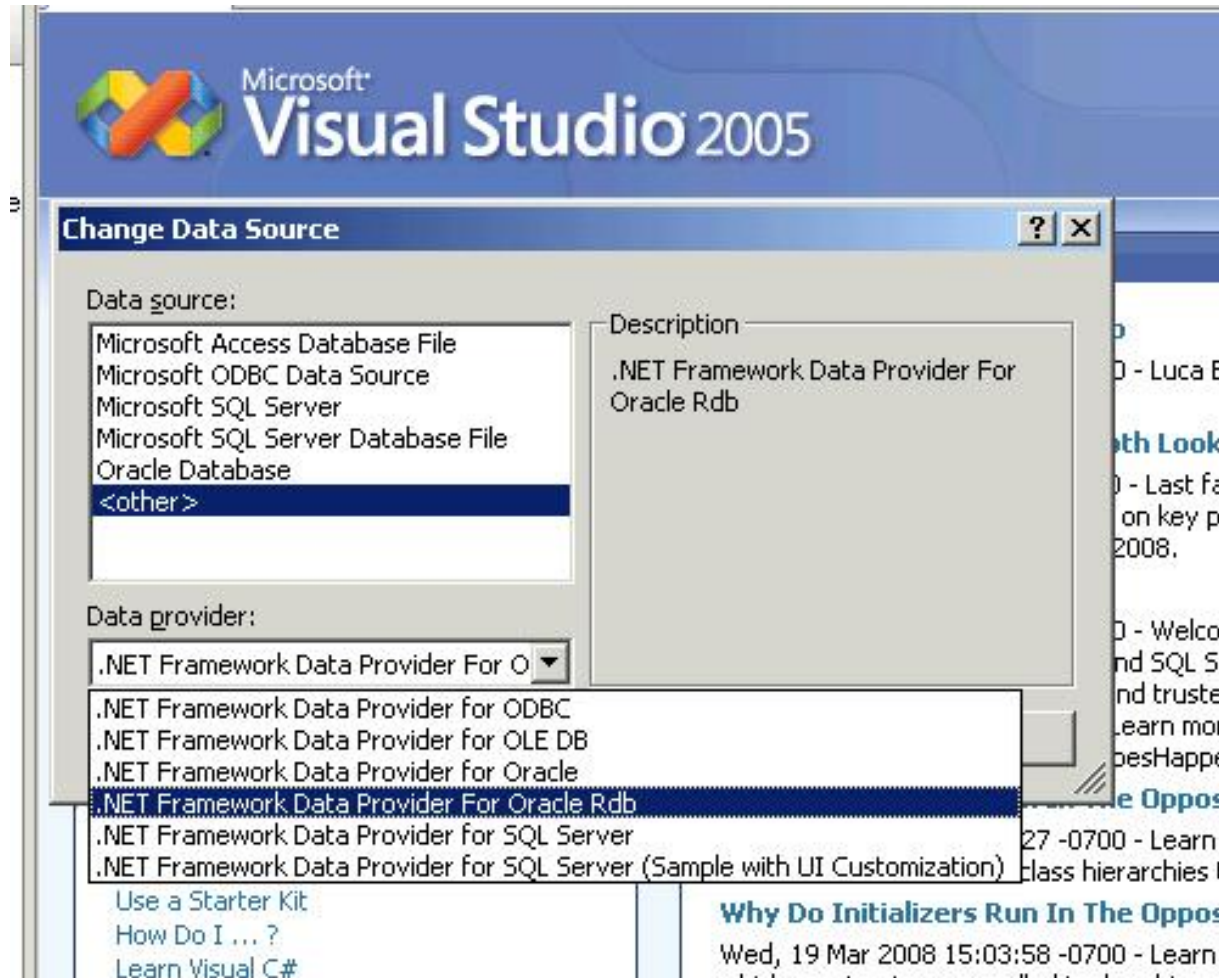


What is Entity Framework?

- EF is a *data access framework* from Microsoft that helps *bridge the gap* between *data structures* and *objects* in your applications



DDEX Provider for Visual Studio



SQL Developer For Rdb

SQL Developer provides

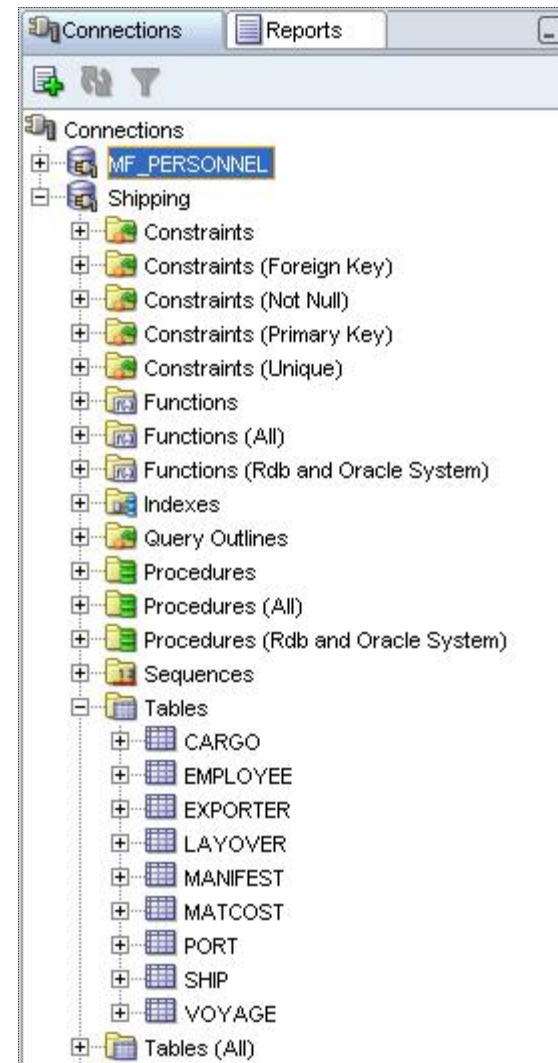
- A free client database development tool
- Comprehensive core functionality
- Great user experience
- Enhanced productivity
- Simplified database development tasks

Product Overview

- Creating Connections
- Creating and Browsing Objects
- Querying Data
- Executing Queries
- Defining and Running Database Reports

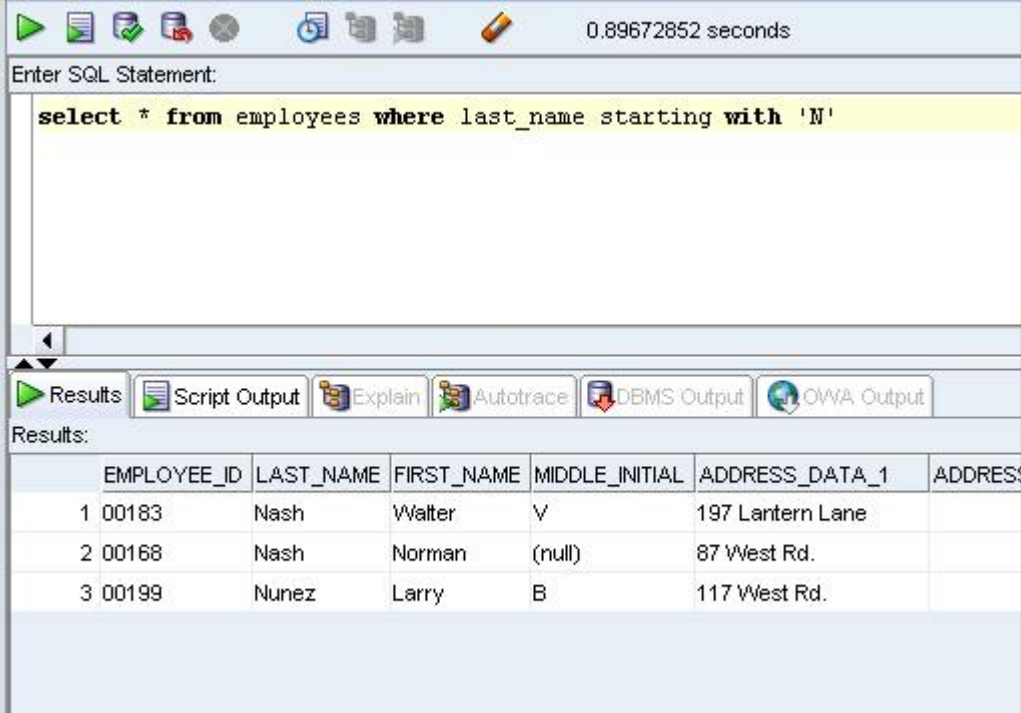
Object Browsing

- Tree Based Object Browser
- Browse Database Objects
- Support for common objects
 - Tables, Views, Indexes
 - Procedures, Functions
 - Triggers, Constraints
 - Query Outlines



SQL Worksheet

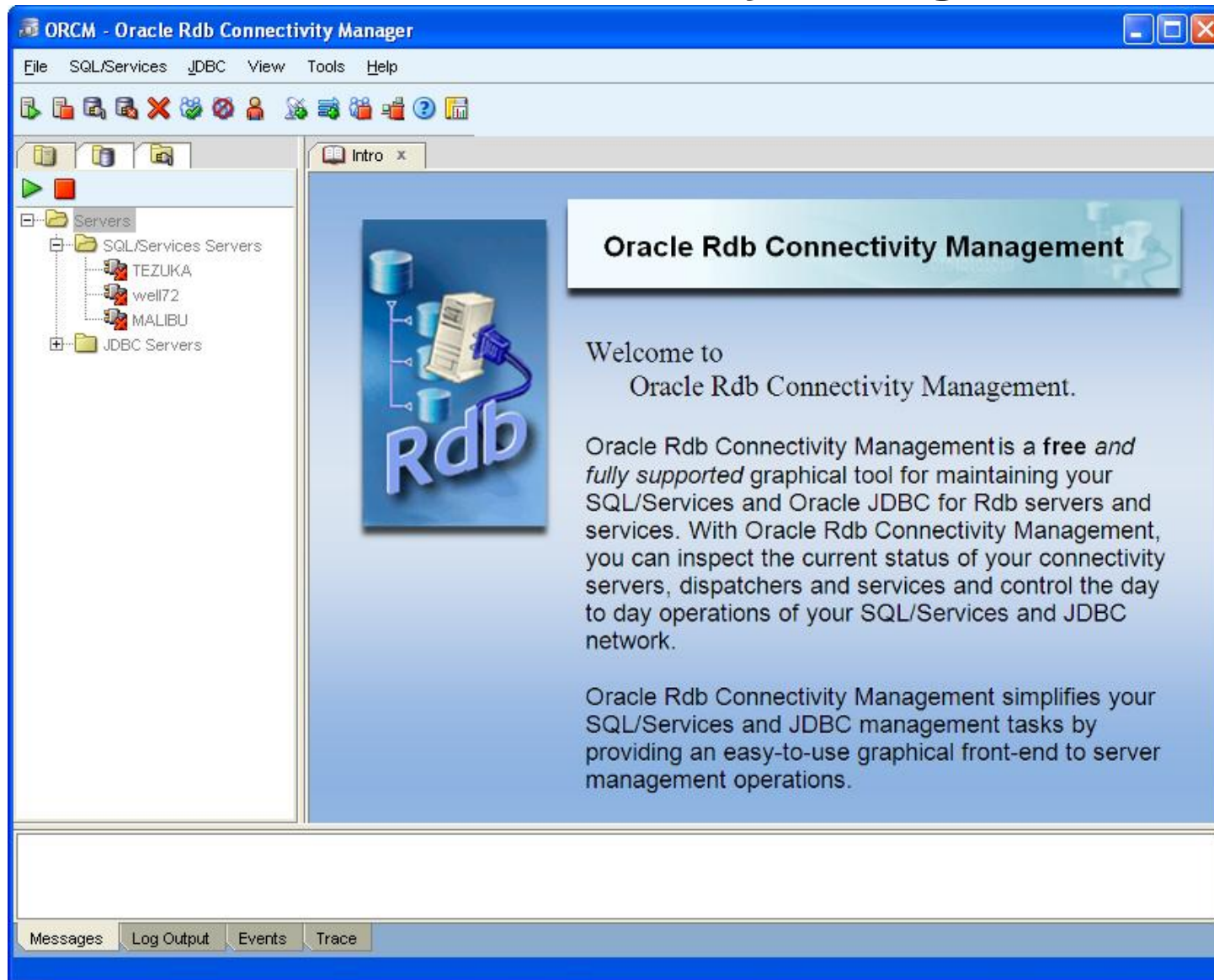
- Syntax Highlighting
- Code Insight
- Single Statement Execution
- Script Execution
- Code Formatting
- Command History



The screenshot displays the Oracle SQL Worksheet interface. At the top, a toolbar contains icons for running, saving, and other actions, along with a timer showing 0.89672852 seconds. Below the toolbar is a text area labeled "Enter SQL Statement:" containing the query: `select * from employees where last_name starting with 'N'`. The query is syntax-highlighted. Below the text area is a toolbar with buttons for "Results", "Script Output", "Explain", "Autotrace", "DBMS Output", and "OWA Output". The "Results" button is selected, and the results are displayed in a table below. The table has columns: EMPLOYEE_ID, LAST_NAME, FIRST_NAME, MIDDLE_INITIAL, ADDRESS_DATA_1, and ADDRESS.

	EMPLOYEE_ID	LAST_NAME	FIRST_NAME	MIDDLE_INITIAL	ADDRESS_DATA_1	ADDRESS
1	00183	Nash	Walter	V	197 Lantern Lane	
2	00168	Nash	Norman	(null)	87 West Rd.	
3	00199	Nunez	Larry	B	117 West Rd.	

Oracle Rdb Connectivity Management



Training Partner List

- **Europe, Asia, Middle East and Africa**
 - VX Company
Baarn, The Netherlands
<http://www.vxcompany.com/rdbtrainingcourses>
- **Americas**
 - JCC Consulting, Inc.
Granville, Ohio, United States
<http://www.jcc.com/>
- **Oracle CODASYL DBMS Worldwide**
 - Software Concepts International
Nashua, New Hampshire, United States
<http://www.sciinc.com/>



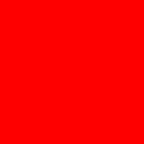


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