

# Oracle9i Application Server

## What's New in Release 2

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Oracle9i Application Server includes over 250 new features enabling companies to build, deploy and manage business critical web sites, applications and web services.

## WHAT'S NEW IN ORACLE9i APPLICATION SERVER RELEASE 2?

Oracle9i Application Server (Oracle9iAS) provides the fastest and most complete software available for building, deploying, and managing business-critical web sites, applications, and web services. The new Oracle9iAS Release 2 offers more than 250 new features in the following areas:

- Productive J2EE Development
- Advanced Clusters for Reliability, Availability, and Scalability
- Unbreakable Security
- Mission-Critical Web Services
- 360 Degrees of Integration
- Productive Portal
- Advanced Web Analytics and Business Intelligence
- Unified Messaging for eMail, Fax, and Voice
- Enhanced Mobile Support
- Open and Enterprise Ready

Oracle9i Application Server delivers an open, productive platform for developing web sites and deploying transactional applications.

## PRODUCTIVE J2EE DEVELOPMENT

Oracle9iAS R2 delivers comprehensive J2EE 1.3 support for developing and deploying transactional applications. Oracle9iAS interacts with leading frameworks and IDEs, such as Oracle9iAS MVC Framework for J2EE, Oracle Business Components for Java, Oracle9i JDeveloper and 3<sup>rd</sup> party tools to support rapid application development.

## Servlets and JavaServer Pages

Oracle9iAS R2 automatically recompiles servlets, allowing developers to write, edit, debug, and deploy code rapidly. It also supports the auto-compilation and auto-deployment of servlets in EAR and WAR archives.

Oracle9iAS provides a JSP 1.2 compliant translator and runtime engine that supports standard JSP Tags. In addition, to shield developers from low-level API coding, Oracle9iAS R2 introduces new JSP tag libraries for connection pooling, email, file access, personalization, Web searches, and more.

## Enterprise JavaBeans

Oracle9iAS R2 provides comprehensive support for the EJB 2.0 specification, including session beans, entity beans, and the newly defined message-driven beans. Message-driven beans are asynchronous consumers, invoked by an EJB container upon arrival of a JMS message. Because Oracle9iAS's JMS implementation is integrated with SOAP, message-driven beans can be exposed as Web services.

Oracle9iAS R2 supports two flavors of JMS – a database-independent lightweight service for asynchronous messages, as well as an open API to integrate with messaging systems, such as Oracle Advanced Queuing, SonicMQ, SwiftMQ, and MQSeries.

For persistence, Oracle9iAS R2 can auto-generate mappings between an EJB and the database. Oracle9iAS R2 supports popular object-relational mapping tools like Oracle9i JDeveloper's Business Components for Java and WebGain's Toplink.

To build B2B applications that integrate trading partner interactions, Oracle9iAS R2 introduces the Active Component Framework. Using this framework, EJBs can participate in long-lived transactions that are reliable and recoverable.

## Transaction Management

Oracle9iAS R2 supports JTA 1.0 for transaction management. Oracle9iAS R2 supports 2-phase commit with Oracle databases, non-Oracle databases, and XA-compliant resource managers, such as MQSeries. Oracle9iAS introduces two new transactional modes in Release 2 -- *Read Only* and *Serializable*. In *Serializable* mode, Oracle9iAS delegates the transaction runtime to the database to make it more efficient.

## ADVANCED CLUSTERS FOR RELIABILITY, AVAILABILITY, AND SCALABILITY

Oracle9iAS Release 2 introduces advanced clustering features to keep critical applications up and running 24x7. A cluster is a collection of nodes installed on different hardware that function together as a single instance, ensuring no single point of failure in multi-tier deployment configurations. With connection rerouting, client requests are transparently routed to another node when the first node fails. Oracle9iAS R2 supports three levels of clustering on the middle-tier: Web Server, J2EE Server, and Web Cache clusters. With end-to-end clustering, applications can run without interruption, ensuring Zero Unplanned Downtime and Zero Planned Downtime. By adding low-cost commodity hardware to clusters, businesses can scale to handle thousands of users.

## Zero Unplanned Downtime

Oracle9iAS is fault-tolerant, continuing to function and service client requests transparently, if a component fails. Oracle9iAS R2 features a new Fast Start

Oracle9i Application Server includes advanced clustering features to keep critical applications up and running 24x7 on low-cost commodity hardware.

Fault Recovery Architecture that ensures graceful recovery of cluster nodes, with no loss service. When a component fails, Oracle9iAS automatically detects the failure, cleans up memory, and restarts the failed process. Oracle9iAS R2 also provides Transparent Application Failover (TAF) for middle-tier applications whose persistent state is managed in an Oracle database. When an application's connection to the database fails, Oracle9iAS has the ability to re-route the JDBC connections or database requests transparently.

### **Zero Planned Downtime**

The ability to maintain and upgrade the system while it is still running ensures high availability of applications and services. Oracle9iAS R2 supports Dynamic Reconfiguration, allowing administrators to automatically add and remove nodes at runtime without bringing down the system. With the new Hot Deployment feature, administrators can bring new applications online without shutting down or restarting the application server. With Oracle9iAS R2, application servers can be grouped together and upgraded in sequence, keeping an application up and running even during the upgrade itself. This new Rolling Upgrades feature allows administrators to apply software patches to their applications without restarting the system. As a result, Oracle9iAS ensures that applications remain available even when maintenance operations are being carried out.

### **Scale to Support Thousands of Users**

Effective load balancing increases a system's scalability because system resources are used more effectively. Oracle9iAS R2 includes an advanced load balancer that intelligently routes requests for J2EE applications between clusters. These load balancing capabilities can also be integrated with 3<sup>rd</sup> party appliances, such as Cisco Local Director, BigIP, and Alteon.

To increase Web site capacity, Oracle9iAS includes Oracle9iAS Web Cache, which can store frequently accessed pages in memory dynamically to dramatically improve response times for end users. By serving cached pages or partial pages directly from memory, the Web Cache decreases the load on the Web server, which frees more processing cycles for dynamic page generation. In Oracle9iAS Release 2, Web Caches can be clustered. This unique feature increases the capacity of the cache and the number of requests that can be served concurrently, and also improves availability, since caches deployed on separate cluster nodes support load-balancing and failover and provide an additional layer of system redundancy. Oracle9iAS R2 also provides a Web Cache Surge Protection feature to prevent back-end Web servers from overloading when request volumes are high.

Oracle9i Application Server provides the most advanced security available to protect business Web sites, portals, wireless applications, and Web services.

## UNBREAKABLE SECURITY

Oracle9iAS provides a highly secure infrastructure to protect your business applications, ensuring that unauthorized users cannot break in. Oracle9iAS R2 delivers powerful, standards-based security features, including Java Authentication and Authorization Server (JAAS), HTTP-S, SSL certificates, and SMIME 3.0 packaging. Oracle9iAS encrypts communication throughout the system – from the browser, to the application server, to the database.

Oracle9iAS R2 provides enterprise single-sign on to allow users to authenticate once to access multiple Web applications. The LDAP-compliant Oracle Internet Directory helps define which users have access to which applications. Administrators have the ability to specify role-based or identity-based access privileges to users for fine-grained security.

Oracle9iAS R2 introduces a 3<sup>rd</sup> party authentication API, providing support for authentication products like Netegrity Siteminder. It also provides support for Public Key Infrastructure (PKI) Authentication.

Finally, because information is stored in a centralized repository, administrators can manage and revoke privileges using a simple web browser.

## MISSION-CRITICAL WEB SERVICES

Oracle9i Application Server unifies the J2EE programming model with emerging Web services standards, including SOAP, WSDL and UDDI.

Oracle9iAS R2 unifies the J2EE programming model with emerging Web services standards including SOAP 1.1, WSDL 1.0, and UDDI 2.0 to make it easy for companies to build and deploy reliable Web services that take advantage of the single sign-on, transaction support, monitoring, logging, and process collaboration features of the core J2EE container.

Oracle9iAS R2 solves the performance problem inherent in XML-intensive SOAP processing by supporting both dynamic invocation of Web services and a highly optimized static binding, which is several times faster than standard Apache SOAP.

Oracle9iAS R2 makes it easier for developers to publish existing applications as Web services by providing automatic generation of WSDL for existing stateless or stateful Java classes, session EJBs, message driven beans, or PL/SQL procedures.

Oracle9iAS R2 introduces a UDDI 2.0-compliant web services directory with advanced security features to prevent access from unauthenticated clients and users, and import/export features that enable synchronization with other public or private UDDI registries.

Web services built on Oracle9iAS can be deployed on any operating system Oracle supports and are compatible with other standards-based service implementations, including those built with Microsoft's .Net technology.

**Oracle9i Application Server provides 360 degrees of integration— linking applications, data, services, users, trading partners, and more.**

### **360 DEGREES OF INTEGRATION**

Integration is complex enough without having separate platforms for application-to-application, business-to-business, and Web services integration. Oracle9i Application Server is the only complete and integrated platform that provides 360 degrees of integration – linking applications, data, services, users, trading partners, and more.

New enhancements in Oracle9iAS R2 include enhanced process management that allows integrated, scalable business events, new Java and XSL-T (SAX, DOM) data transformations with validation, common semantic views, a new design tool with integrated process model, and a single design and runtime repository. With new adapters and enhanced protocol support, Oracle9iAS allows customers to define and coordinate business processes that span packaged applications, Web services, new Java applications, legacy mainframes, heterogeneous databases, and back-end systems.

The new trading partner management (TPM) facilities of Oracle9i Application Server enable companies to flexibly and reliably connect with partners using standards-based Web service and B2B protocols, including SOAP, RosettaNet, EDI, and ebXML. These TPM facilities make it easy for companies to define and implement both pre-negotiated and on-the-spot business agreements with trading partners, and provide the guaranteed asynchronous delivery, sophisticated security, and multi-party, long-running transaction support required for business applications.

Using the browser-based, self-service TPM tool, operational staff, rather than developers, can define and maintain business agreements and relationships. Trading partner agreements for the entire enterprise are stored in a single centralized TPA repository to maximize security and reduce administrative costs. Oracle9iAS is also the first major application server to include a complete set of business process intelligence tools, including pre-built reports and end-to-end monitoring of messages, events, and roles, that enable customers to track, analyze, and optimize their business processes.

### **PRODUCTIVE PORTAL**

Oracle9iAS provides built-in portal software, allowing companies to integrate applications and content and quickly deploy personalized web sites cost effectively. In Oracle9iAS Release 2, new usability features allow users to more easily interact with portal content and customize pages to personal preferences. With Oracle9iAS R2, companies can develop enterprise portals for the Web or mobile devices quickly, without writing a single line of code. A new page-building model allows users to manage content, define page attributes, assign access privileges, and set display characteristics. Browser-based design tools, complimented by cascading page templates, streamline rapid development and ensure a consistent style and layout.

To improve user productivity and collaboration, Oracle9iAS R2 provides content approval routing, page subscription and notification, and enhanced

**Oracle9i Application Server delivers the most productive and comprehensive portal on the market, including out-of-the box features such as content management, workflow, business intelligence, and single-sign on.**

searching capabilities. For example, the new UltraSearch feature allows users to search databases, file systems, web servers, and email mailing list archives. In addition, Oracle9iAS R2 supports WebDav clients, such as Windows Explorer, allowing users to drag and drop content from a file system directly into the portal repository.

If additional functionality is needed, Oracle9iAS R2 provides access to over 250 pre-built portlets from more than 50 market-leading vendors. These value-added portlets allow companies to integrate 3<sup>rd</sup>-party applications such as business intelligence, collaboration, content management, search, and syndicated content. Businesses can also leverage existing applications using pre-built adapters for applications from SAP, PeopleSoft, Siebel, and many more. When greater flexibility is needed, developers can access the Java Portal Developer Kit (JDPK) online from the Oracle Portal Studio to create and customize portlets using open standards, such as J2EE, XML, and SOAP.

### **ADVANCED WEB ANALYTICS AND BUSINESS INTELLIGENCE**

Oracle9iAS R2 integrates business intelligence directly in the portal with Oracle9iAS Reports and Oracle9iAS Discoverer portlets. In release 2, Oracle9iAS Reports can combine multiple data sources in a single report. In addition, reports can be generated automatically when a certain event occurs, helping, helping companies make faster more informed decisions.

Oracle9iAS R2 also introduces Oracle9iAS Clickstream Intelligence, a powerful web analytics tool, to enable companies to analyze the performance of their web site, visitor traffic, the effectiveness of Web content, and customer loyalty. Users can analyze web site traffic patterns and gain insight into consumer behavior.

### **UNIFIED MESSAGING FOR EMAIL, FAX, VOICE**

With Oracle9iAS Unified Messaging, users can access and manage email, voice mail, and fax messages from any device, including computers, telephones, personal digital assistants, pagers, and TV set top boxes. Oracle9iAS R2 uses the Virtual Inbox in the J2EE middle-tier to provide unified messaging, providing easy Web access to a wide variety of message stores that expose the standard IMAP4 protocol. In addition, Oracle9iAS Unified Messaging can be integrated with 3<sup>rd</sup> party interactive voice response (IVR) and voice messaging systems for access to email messages through a telephone.

Corporations can reap substantial IT savings by integrating email, voice, and fax in one centrally managed system with Oracle9iAS.

**Oracle9i Application Server with built-in business intelligence features helps companies make faster and more informed decisions.**

**Oracle9iAS Unified Messaging consolidates your voice-mail, e-mail and facsimile messages using a Virtual Inbox approach through a Java middle-tier, providing unified messaging functionality without the need to replace costly legacy system.**

Oracle9i Application Server enables you to extend existing applications, such as Email, instant messaging, and calendars, to mobile users with minimum time and effort.

## ENHANCED MOBILE SUPPORT

Oracle9iAS Wireless provides a complete set of web-based tools to manage your wireless business including the applications and users.

Oracle9iAS Wireless includes vital business components that can be integrated with existing applications. These include Mobile PIM (Personal Information Management) for mobile access to Email, Instant Messaging, and mobile calendars.

Oracle9iAS Wireless R2 supports advanced customization with presets, flexible data-feed capabilities, and support for multiple profiles. In addition, Oracle9iAS Wireless R2 has enhanced Location Based Services with geo-coding, automatic and manual mobile positioning, routing and navigation and mapping.

In Oracle9iAS Wireless R2, user management is based on OID/LDAP and has support for Single-Sign-On. In addition, there is a scalable new alert engine with condition and time alerts that can be pushed to any device.

Included with the product is the Mobile Studio, a cost-efficient, scalable portal environment to develop, test, and deploy wireless applications.

## OPEN AND ENTERPRISE-READY

Oracle9iAS R2 delivers new support for 3<sup>rd</sup>-party databases and an extensive range of new interoperability features that make it the most open and enterprise-ready application server on the market. Oracle9iAS R2 now offers full JDBC support with connectivity to DB/2, Informix, Sybase, and Microsoft SQL-Server.

The Oracle9iAS HTTP server is based on the popular Apache open source server, and allows developers to program web sites in a variety of languages, including Java, Perl, C, C++, and PL/SQL.

New proxy support for Netscape and Microsoft IIS web servers enables customers to integrate their existing web server installations with the advanced J2EE, portal, and integration capabilities of Oracle9iAS.

Oracle9iAS R2 offers full Java Connector Architecture (JCA 1.0) support to enable J2EE applications to access any database, external application, or resource provider that supports JCA. Oracle9iAS R2 provides an advanced CICS adapter to enable full mainframe access from J2EE applications.

Enhanced support for CORBA includes a high performance J2EE 1.3-compliant implementation of RMI-over-IIOP to allow developers to build applications and web services that communicate with existing systems through a Java-based CORBA implementation.

Oracle9iAS R2 also introduces a WebDAV 1.1 repository that can be hosted in the file system or the database to support WebDAV-enabled authoring and content management tools.

Oracle9i Application Server's open architecture ensures that your Web applications can integrate with your IT environment.

**Oracle9i Application Server has revolutionized the fast-growing application server market by being first to integrate all the technology to deploy e-business portals, transactional applications, and Web services in a single product.**

## **CONCLUSION**

Oracle9i Application Server offers the industry's fastest and most complete J2EE-certified application server. Oracle9iAS Release 2 is adds over 250 new features including support for the latest J2EE and web services standards, new portal and wireless capabilities, and advanced clustering and security technology that make business web sites and applications Unbreakable. Oracle9iAS includes all the components needed to run your e-business, reducing costs and allowing you to focus on areas that enable you to create competitive advantage.



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