

Oracle® Fusion Applications

Concepts Guide

11g Release 5 (11.1.5)

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Documentation for system administrators and developers that describes the core infrastructure components for Oracle Fusion Applications, the Oracle Fusion Middleware components on which Oracle Fusion Applications is built, and the Oracle Fusion Applications administration.

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Preface

This guide provides an overview of the Oracle Fusion Applications architecture and describes the core infrastructure components of Oracle Fusion Applications, the Oracle Fusion Middleware components on which Oracle Fusion Applications is built, and Oracle Fusion Applications Administration.

Audience

This document is intended for anyone who is interested in an overview of the components and features that comprise Oracle Fusion Applications.

Documentation Accessibility

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Related Documents

For more information, see the following documents:

- *Oracle Fusion Applications Administrator and Implementor Roadmap*
- *Oracle Fusion Applications Administrator's Guide*
- *Oracle Fusion Applications Installation Guide*
- *Oracle Fusion Applications Customer Relationship Management Enterprise Deployment Guide*
- *Oracle Fusion Applications Financials Enterprise Deployment Guide*
- *Oracle Fusion Applications Developer's Guide*
- *Oracle Fusion Middleware Concepts Guide*
- *Oracle Fusion Middleware Administrator's Guide*

Conventions

The following text conventions are used in this guide:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
<code>monospace</code>	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

What's New in This Guide

The following topics introduce the new and changed features of Oracle Fusion Applications and other significant changes that are described in this guide, and provides pointers to additional information.

New and Changed Features for 11g Release 5 (11.1.5)

Oracle Fusion Applications 11g Release 5 (11.1.5) does not contain any new and changed features for this document.

Other Significant Changes in this Document for 11g Release 5 (11.1.5)

For 11g Release 5 (11.1.5), this guide has been updated in several ways. Following are the sections that have been added or changed.

- Combined chapters on Oracle Fusion Applications and Oracle Fusion Middleware components, restructured sections within the chapter to incorporate descriptive headings, and revised many of the component descriptions. See [Chapter 3](#).
- Added "Core Benefits" and "Key Concepts" sections to the Oracle Fusion Middleware Extensions for Applications section. See [Section 3.3.1](#) and [Section 3.3.3](#).
- Added Security information to the Oracle Enterprise Scheduler and Oracle Enterprise Crawl and Search Framework sections. See [Section 3.4.4.4](#) and [Section 3.4.5.4](#).
- Revised Oracle WebCenter Portal and Oracle WebCenter Content sections to include information about how Oracle Fusion Applications leverages these components. See [Section 3.4.12](#) and [Section 3.4.13](#).
- Moved and expanded the "Oracle Database" topic. See [Section 3.5](#).
- Revised the descriptions of many of the tools in the "Key Management Tools and Processes" chapter. See [Chapter 4](#).
- Removed the "Cloning" section from Chapter 4. Oracle Fusion Applications-specific information can be found in the "Moving Oracle Fusion Applications" section. See [Section 4.2.6](#).
- Created the "Implementation and Development Tools" section. Moved the sections for Oracle JDeveloper and Oracle Fusion Functional Setup Manager under this new heading to portray the roles of these tools more accurately. See [Section 4.3](#).

Introduction to Oracle Fusion Applications

The Oracle Fusion service-oriented platform and applications suite joins next-generation enterprise technologies, applications, and services, including Oracle Fusion Applications and Oracle Fusion Middleware, to change the dynamics in the applications marketplace and revolutionize business. This chapter provides an introduction to the architecture and components of Oracle Fusion Applications.

This chapter contains the following sections:

- [Section 1.1, "About Oracle Fusion Applications"](#)
- [Section 1.2, "Oracle Fusion Applications Design"](#)
- [Section 1.3, "Oracle Fusion Applications Runtime Environment"](#)

For more information about Oracle Fusion Applications development and administrative tasks, see the following:

- *Oracle Fusion Applications Developer's Guide*
- *Oracle Fusion Applications Administrator's Guide*

For more information about Oracle Fusion Middleware concepts, see the following:

- *Oracle Fusion Middleware Concepts Guide*
- *Oracle Fusion Middleware Administrator's Guide*

For more information about Oracle Database, see *Oracle Database 2 Day DBA*.

1.1 About Oracle Fusion Applications

Using the latest technology and incorporating the best practices gathered from Oracle's customers, Oracle Fusion Applications is a suite of 100% open standards-based business applications that provide a new standard for the way businesses innovate, work, and adopt technology. Delivered as a complete suite of modular, service-enabled enterprise applications, Oracle Fusion Applications works with Oracle's Applications Unlimited portfolio to evolve business to a new level of performance. Whether it is one module, a product family, or the entire suite, Oracle provides businesses with their choice of all advancements pioneered by Oracle Fusion Applications, at a pace that matches individual business demands.

This section contains the following topics:

- [Section 1.1.1, "Standards-Based Architecture"](#)
- [Section 1.1.2, "Best Practices Business Processes"](#)
- [Section 1.1.3, "Choice of Deployment Options"](#)

1.1.1 Standards-Based Architecture

Oracle Fusion Applications is standards-based, making it highly adaptable. This standards-based technology enables you to respond effectively to change with flexible, modular, user-driven business software that is powered by best-in-class business capabilities built on open standards. Its technology framework includes the following products:

- Oracle WebCenter Portal provides design-time and runtime tools for building enterprise portals, transactional websites, and social networking sites.
- Oracle Business Intelligence provides a full range of business intelligence capabilities that enable you to analyze, present, report, and deliver organizational data.
- Oracle WebCenter Content enables you to leverage document management, Web content management, digital asset management; and records retention functionality to build and complement your business applications.
- Oracle SOA Suite provides a complete set of service infrastructure components for designing, deploying, and managing SOA composite applications. Oracle SOA Suite enables services to be created, managed, and orchestrated into SOA composite applications.
- Oracle WebLogic Server is a scalable, enterprise-ready application server based on Java Enterprise Edition (Java EE).
- Oracle JDeveloper is an integrated development environment with end-to-end support for modeling, developing, debugging, optimizing, and deploying Java applications and web services.
- Oracle Enterprise Manager offers business-driven applications management, integrated application to disk management, integrated systems management, and support experience.
- Oracle Identity Management enables organizations to manage the end-to-end lifecycle of user identities and to secure access to enterprise resources and assets.

Using a standards-based architecture reduces the cost for integration and enables you to reuse systems and technologies. Standards-based architecture also increases the flexibility of the applications. You can fit the applications to your business by configuring not only the user interface, but also the business objects, the business processes, the business logic, and business intelligence.

The ease of managing Oracle Fusion Applications offers a low total cost of ownership that results in a faster return on investment by using tools for rapid setup and flexible deployment models, as well as providing protection for upgrades.

1.1.2 Best Practices Business Processes

Oracle Fusion Applications incorporates best practices business processes, including those from Oracle product lines, such as Oracle E-Business Suite, PeopleSoft, Oracle On Demand, JD Edwards, and Siebel to optimize the user experience and productivity.

The Oracle Fusion Applications user interface facilitates the customer-driven, intuitive design of the applications that result in large productivity gains. The user interface design of Oracle Fusion Applications is:

- Role-based, which enables pervasive delivery in multiple modes, devices, and channels

- Configurable and extensible, through JDeveloper during design time or the composer during runtime, which enhances productivity for individual users and groups of users
- Composite and contextual, providing integrated information in the context of process
- Social and collaborative, offering built-in user communities and workspace, Web 2.0 information distribution, and embedded social computing to improve collaborative work

Specific features of the user interface include:

- Role-based dashboards that you can configure to your business needs
- Unified worklists that provide lists of tasks from across the applications
- Guided Business Processes, which are organized sets of tasks that help you get your work done more efficiently
- Embedded analysis methods that provides the necessary information for completing a task
- Contextual help that provides conceptual and procedural reference information
- Oracle Fusion Applications Search, which provides a seamless search experience for easily locating and taking action on relevant data
- Tagging, which enables you to associate keywords with objects so they can be easily located
- Instant collaboration that provides the contact information for persons related to your tasks

1.1.3 Choice of Deployment Options

Oracle Fusion Applications is delivered as a suite, but can be adopted modularly. It can be adopted as a single suite, as product offerings (the highest level collection of functionality that you can license and implement), or as solutions sets that work with other Oracle Applications Unlimited product lines.

Oracle Fusion Applications is offered with the following deployment options:

- On premise, hosted by the enterprise
- Public cloud (available to the general public), hosted over the Internet by Oracle, software as a service (SaaS), or Oracle business partners offering business process outsourcing (BPO) solutions

1.2 Oracle Fusion Applications Design

This section describes the following Oracle Fusion Applications design principles:

- [Section 1.2.1, "Data Model and Business Logic Design"](#)
- [Section 1.2.2, "Business Process Design"](#)
- [Section 1.2.3, "Business Intelligence"](#)
- [Section 1.2.4, "Operational Management Design"](#)

1.2.1 Data Model and Business Logic Design

Oracle Fusion Applications uses a unified data model, which is a superset of E-Business Suite, PeopleSoft, JD Edwards, and Siebel entities and attributes. You can extend this data model while maintaining consistent semantics.

Logical data striping offers flexible enterprise structures for global organizations. Reference data sets enable business units to share reference data. Reference data is managed by sets. Transactional data is managed or striped by business units. You can assign sets of codes to each business unit. There is no need to duplicate reference data for each business unit.

Oracle Fusion Applications uses trees, a hierarchy model that offers flexible hierarchies for crossing line of business processes. It also defines line of business processes more efficiently. The tree structure is in the data model and is used directly in the Java business logic and exposed through Oracle Business Intelligence.

Flexfields enable you to add custom attributes and define custom key structures in Oracle Fusion Applications.

A unified metadata dictionary, and a metadata store, accessible to all the tools, provide consistency for all the components in the technology stack and enable you to preserve changes across upgrades.

Unified concepts from existing and new applications support upgrades from other Applications Unlimited product lines to Oracle Fusion Applications.

1.2.2 Business Process Design

Oracle Fusion Applications uses a declarative business process design that leverages Oracle SOA Suite. The SOA features used include approval management flows, human workflows, Oracle Business Process Management Worklist (Oracle BPM Worklist), business rules, activity guides, and process configuration customization tools (Oracle SOA Composer). Integration, creating business processes, and human workflow is the same as it is done in SOA.

The business process design of Oracle Fusion Applications features:

- Declarative business process definition, which enables processes to be defined collaboratively between businesses and IT
- Unified business process execution through system, human, and document workflow in a single business process management foundation to optimize processes while ensuring upgradeability
- Unified process visibility and analytics with cross-organization monitoring, tracing, and variance analysis
- Flexible business process customization, which enables you to make in-flight changes to data models, rules, events, and processes
- Shared business metadata dictionary, which contains all the BPEL rules and processes

During design time, two languages are used: Business Process Execution Language (BPEL) and Business Process Modeling and Notation (BPMN), which share the same engine and metadata dictionary.

One SOA infrastructure is used per product family, but all worklists are available in one single location. For example, a worklist can include content from Oracle Fusion Customer Relationship Management and Oracle Fusion Financials.

All business processes are configurable using a rich set of tools (BPM Composer, Rules Editor, Routing Editor, and Profile Editor) that enable you to optimize the processes as you are using them.

For more information, see the "Introduction and Concepts" chapter in the *Oracle Fusion Middleware Administrator's Guide for Oracle SOA Suite and Oracle Business Process Management Suite*.

1.2.3 Business Intelligence

Oracle Fusion Applications offers the following Oracle Business Intelligence capabilities:

- Operational analysis, what-if analysis, analytic dashboards that enable you to adapt analytics to changes in transactional and process systems
- Unified analytic definitions and calculations
- Role-based dashboards with consistent security and navigation
- Data mining-driven sales prediction, trending, and forecasting
- Reporting (pixel perfect reports designed for printing)

A common repository product design is used across all Oracle Business Intelligence products.

For more information, see the *Oracle Fusion Middleware User's Guide for Oracle Business Intelligence Enterprise Edition (Oracle Fusion Applications Edition)*.

1.2.4 Operational Management Design

The operational management design for Oracle Fusion Applications offers:

- Unified business services level management to achieve a comprehensive lifecycle management
- Single point of administration for applications and technology to achieve comprehensive lifecycle management
- Centralized management of users, privileges, and controls to simplify identity management and controls enforcement
- Flexible deployment options

Oracle Enterprise Manager manages the middleware and the database. It provides an application-centric view, which shows information according to the product you have deployed. It also enables you to drill down from the business process to the technology stack through a single dashboard.

Rather than managing users and roles in themselves, Oracle Fusion Applications externalizes both the users and the roles to reside in a Lightweight Directory Access Protocol (LDAP) system. This identity management model centralizes access and entitlements, and is embedded in Oracle Fusion Applications.

Oracle Fusion Governance, Risk, and Compliance manages separation of duty to ensure that the roles do not overlap.

1.3 Oracle Fusion Applications Runtime Environment

After installation, a typical Oracle Fusion Applications runtime environment, shown in [Figure 3-1](#), contains the following:

- Oracle Fusion Applications product families.
For information, see [Section 3.2, "Product Families"](#).
- Oracle Fusion Middleware, consisting of the following:
 - Oracle Fusion Middleware infrastructure components
For information, see:
 - * [Section 3.3, "Oracle Fusion Middleware Extensions for Applications"](#)
 - * [Section 3.4.4, "Oracle Enterprise Crawl and Search Framework"](#)
 - * [Section 3.4.5, "Oracle Enterprise Scheduler"](#)
 - Oracle Fusion Middleware components
For information, see [Section 3.4, "Oracle Fusion Middleware Components"](#).
 - Oracle WebLogic Server
For information, see *Oracle Fusion Middleware Introduction to Oracle WebLogic Server*.
- Oracle Database.
For information, see [Section 3.5, "Oracle Database"](#).
- Oracle Enterprise Manager Fusion Applications Control (Fusion Applications Control).
For more information, see the "Getting Started with Administering Oracle Fusion Applications" chapter in the *Oracle Fusion Applications Administrator's Guide*.
- Oracle Enterprise Manager Cloud Control (Cloud Control).
For more information, see the "Oracle Enterprise Manager Cloud Control" section in the *Oracle Fusion Applications Administrator's Guide*.
- Oracle Enterprise Manager Database Control (Database Control).
For more information, see *Oracle Database 2 Day DBA*.

Key Concepts

This chapter describes concepts important to understanding Oracle Fusion Applications.

This chapter contains the following topics:

- [Section 2.1, "Key Oracle Fusion Middleware Components for Oracle Fusion Applications"](#)
- [Section 2.2, "Enterprise Deployment"](#)
- [Section 2.3, "Security"](#)

2.1 Key Oracle Fusion Middleware Components for Oracle Fusion Applications

Oracle Fusion Applications uses both types of the components that Oracle Fusion Middleware provides, the Java component and the system component. A Java component is an Oracle Fusion Middleware component that is deployed as one or more Java EE applications and a set of resources. Java components are deployed to an Oracle WebLogic Server domain as part of a domain template. A system component is a manageable process that is not deployed as a Java application. Instead, a system component is managed by Oracle Process Manager and Notification Server.

For more information on the Oracle Fusion Middleware components, see the *Oracle Fusion Middleware Concepts Guide*.

2.2 Enterprise Deployment

An enterprise deployment is an Oracle best practice based on proven Oracle high-availability and security technologies and recommendations for Oracle Fusion Applications. The best practices span all Oracle products across the entire technology stack: Oracle Database, Oracle Applications, Oracle Fusion Middleware, Oracle Fusion Applications, Oracle Collaboration Suite, Oracle Enterprise Manager Fusion Middleware Control, and Oracle Enterprise Manager Fusion Applications Control, Oracle Enterprise Manager Cloud Control, and Oracle Enterprise Manager Database Control.

For more information about enterprise deployment for Oracle Fusion Applications, see the *Oracle Fusion Applications Customer Relationship Management Enterprise Deployment Guide*.

2.3 Security

Oracle Fusion Applications security offers:

- Role-based access
- Segregation of duties
- Consistent and transparent function and data security
- Robust privacy protections
- Native identity management and access provisioning
- Enforcement across tools (all the tools use the same policies) and across the information lifecycle
- Integration with Oracle Fusion Governance, Risk, and Compliance
- An extensive reference implementation
- Standard tools to extend the footprint

For more information about security for Oracle Fusion Applications, see [Chapter 3, "Key Components"](#) and the *Oracle Fusion Applications Security Guide*.

Key Components

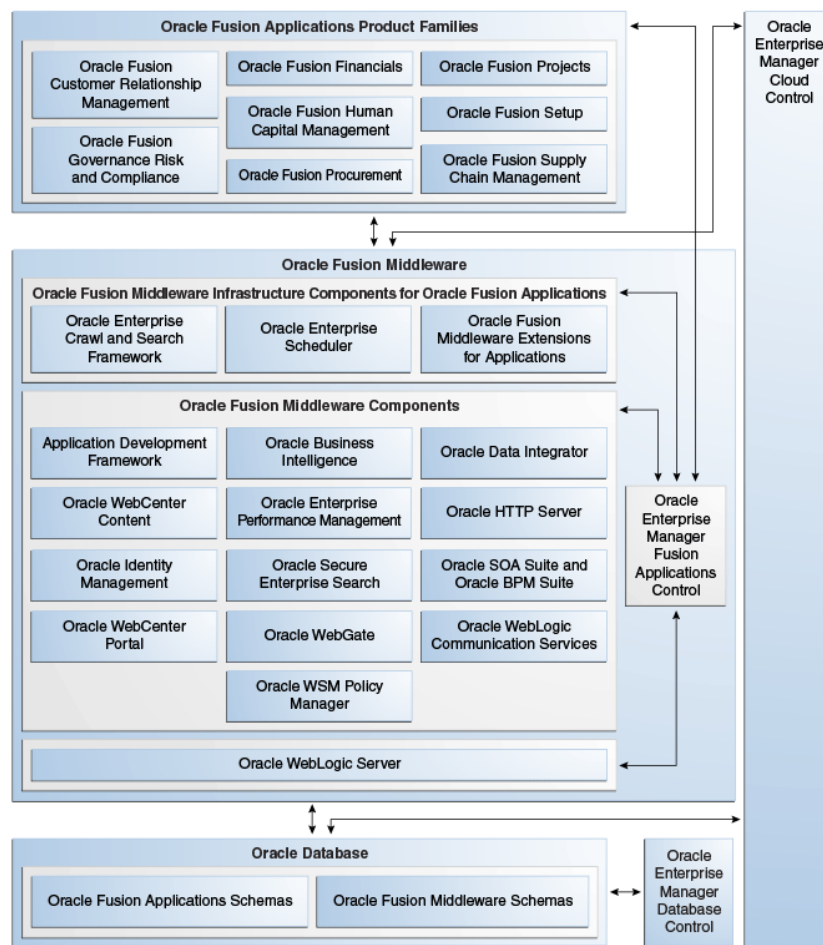
This chapter describes the common core framework and infrastructure components of Oracle Fusion Middleware as used by Oracle Fusion Applications.

This chapter contains the following topics:

- [Section 3.1, "Overview of Oracle Fusion Applications Components"](#)
- [Section 3.2, "Product Families"](#)
- [Section 3.3, "Oracle Fusion Middleware Extensions for Applications"](#)
- [Section 3.4, "Oracle Fusion Middleware Components"](#)
- [Section 3.5, "Oracle Database"](#)

3.1 Overview of Oracle Fusion Applications Components

Oracle Fusion Applications follows a modular, standards-based architecture. It is natively built on Oracle Fusion Middleware 11g components and uses Oracle Database. [Figure 3–1](#) illustrates the components of Oracle Fusion Applications.

Figure 3–1 Oracle Fusion Applications Components

3.2 Product Families

Each **product family** is based on a common Oracle Fusion Applications data model and services. Product families contain one or more Java EE applications that are specific to Oracle Fusion Applications and deployed to Oracle WebLogic Server. An application can contain multiple products, and a product can also span multiple applications. A product typically has a one-to-one correspondence with an Enterprise Archive (EAR) file. For example, `EarSales.ear` is an application and `Sales` is a product.

Oracle Fusion Applications includes the product families described in [Table 3–1](#).

Table 3–1 Product Families

Oracle Fusion Applications Product Families	Description
Oracle Fusion Customer Relationship Management	Manages customers, contacts, and resources, including data quality configuration.
Oracle Fusion Financials	Manages financial flows, including assets, ledgers, cash cycle, invoices and payments, accounts receivable, collections, and setup of subledger accounting and tax configuration.

Table 3–1 (Cont.) Product Families

Oracle Fusion Applications Product Families	Description
Oracle Fusion Governance, Risk, and Compliance	Provides critical business controls to manage risk, multi-regulatory compliance, and controls enforcement. The connector for Oracle Fusion Applications provides a prebuilt solution for managing Separation of Duties (SoD) within and across product families. You can also utilize Oracle Fusion Governance, Risk, and Compliance to analyze suspect transactions and configuration settings based on user defined conditions. This allows organizations to actively determine the risk that exists within their application that can materially impact the reliability of the information that exists for reporting and decision making purposes. Finally, Oracle Fusion Governance, Risk, and Compliance can apply preventive controls that will limit what a user can see and do within an Oracle Fusion Applications user interface according to user-defined conditions. The objective is to pro-actively mitigate the risk of extraneous access or improper transactions from existing.
Oracle Fusion Human Capital Management	Provides employee management for an organization.
Oracle Fusion Procurement	Manages the procurement process including requisitions, purchase orders, and supplier negotiations.
Oracle Fusion Project	Manages projects, including how to plan, budget, forecast, collect costs, bill customers, and report performance.
Oracle Fusion Supply Chain Management	Integrates and automates all key supply chain processes, from design, planning and procurement to manufacturing and fulfillment, providing a complete solution set to enable companies to power information-driven value chains.
Oracle Fusion Setup	<p>Supports the other product families.</p> <p>In addition to Oracle Fusion Functional Setup Manager for setting up functional data, this product family includes applications to assist application users:</p> <ul style="list-style-type: none"> ■ The Oracle Fusion Home page provides a Welcome dashboard with a collection of portlets and task flows for answering common questions. ■ Oracle Fusion Applications Help delivers content users need to complete their tasks. You can optionally install a local version of Oracle Fusion Applications Help, enabling you to extend and customize the help. For more information about using and customizing a local install of the help, see the <i>Oracle Fusion Applications Installation Guide</i> and the <i>Oracle Fusion Applications Common Implementation Guide</i>.

3.3 Oracle Fusion Middleware Extensions for Applications

Oracle Fusion Middleware Extensions for Applications (Applications Core) is an Oracle Fusion Middleware extension that provides design-time and runtime infrastructure components to help standardize complex development patterns for Oracle Fusion Applications.

Applications Core creates simplified methods of implementing complex requirements by providing robust metadata and comprehensive UI components and services. All of the Applications Core components have been integrated with the rest of the Oracle

Fusion Middleware infrastructure so that they are available across every layer of the Oracle Fusion Applications platform.

This section contains the following topics:

- [Section 3.3.1, "Core Benefits of Oracle Fusion Middleware Extensions for Applications"](#)
- [Section 3.3.2, "Key Components of Oracle Fusion Middleware Extensions for Applications"](#)
- [Section 3.3.3, "Key Concepts of Oracle Fusion Middleware Extensions for Applications"](#)

3.3.1 Core Benefits of Oracle Fusion Middleware Extensions for Applications

Oracle Fusion Middleware Extensions for Applications offers these benefits:

- Efficient use of the middleware infrastructure based on common apps usage patterns and guidelines.
- Reusable techniques and patterns implemented in a consistent fashion.
- Consistent UI layout and model usage.
- Apps-specific common functionality reused across product families.
- Integration of all features with key areas like logging and diagnostics, security, management tools, setup tools, migration tools, etc.

3.3.2 Key Components of Oracle Fusion Middleware Extensions for Applications

Applications Core runtime infrastructure components simplify the development process of these patterns and provide a consistent user experience. Examples of these components include the page template (UI Shell), extensibility (Flexfields), hierarchical relationships (Trees), and attachments.

This section contains the following topics:

- [Section 3.3.2.1, "About the UI Shell"](#)
- [Section 3.3.2.2, "About Flexfields"](#)
- [Section 3.3.2.3, "About Trees"](#)
- [Section 3.3.2.4, "About Attachments"](#)

3.3.2.1 About the UI Shell

The UI Shell is a page template containing default information, such as a logo, menus and facets. The UI Shell design supports task-based and user-based navigation, and organizes screen usage effectively by collating tasks, providing dedicated spaces for primary-task supporting information, and maintaining general order and appropriate hierarchy among various elements on the screen.

For more information about the UI Shell, see the "Defining User Interfaces" part in the *Oracle Fusion Applications Developer's Guide*.

3.3.2.2 About Flexfields

Flexfields enable related attributes and user interface (UI) components to be dynamically created based on keys from the controlling data. There are three types of flexfields that enable implementers to configure application features without programming and are fully supported within Oracle Fusion Applications:

- Descriptive flexfields
- Extensible flexfields
- Key flexfields

For more information about flexfields, see the "Using Flexfields for Custom Attributes" chapter in the *Oracle Fusion Applications Extensibility Guide* and the "Developing Applications with Flexfields" part in the *Oracle Fusion Applications Developer's Guide*.

3.3.2.3 About Trees

Oracle Fusion Applications tree management enables data in applications to be organized into a hierarchical fashion, and enables you to create tree hierarchies based on specific data. The advantages of using tree hierarchies to develop applications include:

- **Reusable code** that results in a one-time-only implementation of many tree-management features, and can be used immediately by every type of application hierarchy.
- **Open metadata** that can be read by any application that needs to use tree-management hierarchies.
- **Tree structures** that capture the business rules to which the data must adhere.
- **ADF Business Components view objects** that are used as data sources, eliminating the need to build new types of data sources.
- **Hierarchical relationships between entities that are external to the entity itself**, that enables multiple hierarchical views to be implemented for the same set of entities. Each of these hierarchies can be used to implement a different business function.
- **Data flattening** that improves query performance against the hierarchical data, especially for hierarchical queries such as roll-up queries.
- **Business events** that can be consumed by any application requiring additional processing on specific tree operations.
- **Tree- and node-level access control** that eliminates the need for product teams to write their own access-control code.
- **Well-defined APIs available for metadata and data** that make it easy to write migration tools for existing hierarchies in Oracle E-Business Suite, PeopleSoft, and Siebel.

For more information about trees, see the "Organizing Hierarchical Data with Tree Structures" chapter in the *Oracle Fusion Applications Developer's Guide*.

3.3.2.4 About Attachments

The Attachment component provides a declarative programming mechanism for adding attachments to the UI pages that you create for Oracle Fusion web applications. Once added to a UI page, the component gives users the ability to associate a URL, desktop file, repository file or folder, or text with a business object, such as an expense report, contract, or purchase order.

For more information about attachments, see the "Implementing Attachments" section in the *Oracle Fusion Applications Developer's Guide*.

3.3.3 Key Concepts of Oracle Fusion Middleware Extensions for Applications

Oracle Fusion Middleware Extensions for Applications was built on these key concepts:

- **Easy and sustainable extensibility:** Oracle Fusion Applications can easily be extended using Oracle JDeveloper. Once implemented, tree management functions may be reused immediately in any type of application hierarchy. Flexfields allow your applications to capture additional attributes without additional programming, further extending the functionality of Oracle Fusion Applications.

For more information about trees, see [Section 3.3.2.3, "About Trees"](#) and the "Organizing Hierarchical Data with Tree Structures" chapter in the *Oracle Fusion Applications Developer's Guide*.

For more information about flexfields, see [Section 3.3.2.2, "About Flexfields"](#), the "Using Flexfields for Custom Attributes" chapter in the *Oracle Fusion Applications Extensibility Guide*, and the "Developing Applications with Flexfields" part in the *Oracle Fusion Applications Developer's Guide*.

- **Unified user experience:** All Oracle Fusion Applications pages are built using the UI Shell template to maintain a consistent user interface and user experience. You can create new pages using the UI Shell, adding new functionality while maintaining the look and feel common to other Oracle Fusion Applications pages.

For more information about the UI Shell, see the "Defining User Interfaces" part in the *Oracle Fusion Applications Developer's Guide*.

3.4 Oracle Fusion Middleware Components

The applications for a product family are deployed to an Oracle WebLogic Server domain in the Oracle Fusion Middleware technology stack. This section describes the Oracle Fusion Middleware components that support that deployment.

This section contains the following topics:

- [Section 3.4.1, "Oracle Application Development Framework"](#)
- [Section 3.4.2, "Oracle Business Intelligence"](#)
- [Section 3.4.3, "Oracle Data Integrator"](#)
- [Section 3.4.4, "Oracle Enterprise Crawl and Search Framework"](#)
- [Section 3.4.5, "Oracle Enterprise Scheduler"](#)
- [Section 3.4.6, "Oracle HTTP Server"](#)
- [Section 3.4.7, "Oracle HTTP Server WebGate"](#)
- [Section 3.4.8, "Oracle Identity Management"](#)
- [Section 3.4.9, "Oracle Secure Enterprise Search"](#)
- [Section 3.4.10, "Oracle SOA Suite"](#)
- [Section 3.4.11, "Oracle Web Services Manager Policy Manager"](#)
- [Section 3.4.12, "Oracle WebCenter Content"](#)
- [Section 3.4.13, "Oracle WebCenter Portal"](#)
- [Section 3.4.14, "Oracle WebLogic Communication Services"](#)
- [Section 3.4.15, "Oracle WebLogic Server"](#)

3.4.1 Oracle Application Development Framework

Oracle ADF is an end-to-end Java EE framework that simplifies application development by providing ready-to-use infrastructure services and a visual and declarative development experience. It supports rapid application development based on readily available design patterns and metadata-driven and visual tools.

By minimizing the need to write code that implements the application's infrastructure, Oracle ADF simplifies Java EE development. This enables users to focus on the features of the actual application.

Oracle ADF is also focused on the development experience to provide a visual and declarative approach to Java EE development through the Oracle JDeveloper development tool. For more information, see [Section 4.3.1, "Oracle JDeveloper"](#).

Oracle Fusion Applications uses ADF Security, a framework that provides a security implementation based on JAAS (Java Authentication and Authorization Service). The Oracle ADF implementation of JAAS is permission-based. JDeveloper supports making permission grants to enable fine-grained security for Oracle ADF resources of Oracle Fusion Applications.

For more information about Oracle ADF, see the *Oracle Fusion Middleware Fusion Developer's Guide for Oracle Application Development Framework (Oracle Fusion Applications Edition)*.

3.4.2 Oracle Business Intelligence

Oracle Business Intelligence (Oracle BI) offers a complete, integrated solution that generates and delivers analyses for Oracle Fusion Applications.

The Oracle Business Intelligence platform is an enterprise-class platform for all modes of analysis and information delivery, including dashboards, ad hoc analysis, online analytical processing (OLAP), predictive analytics, and enterprise reporting. You can access information through multiple channels, such as web-based user interfaces, industry standard portals, mobile devices, and the Microsoft Office Suite of applications. You can push information to users through notifications, or embed it within business process workflows. Oracle Business Intelligence simplifies systems deployment and management through integrated systems management capabilities.

Oracle Business Intelligence products integrated with Oracle Fusion Applications include:

- Oracle Business Intelligence Enterprise Edition is a comprehensive set of enterprise business intelligence tools and infrastructure that includes a scalable and efficient query and analysis server, an ad hoc query and analysis tool, interactive dashboards, proactive intelligence and alerts, and an enterprise reporting engine.

For more information, see the *Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition*.

- Oracle Business Intelligence Applications is a complete, prebuilt solution that delivers intuitive, role-based intelligence throughout an organization. This solution enables organizations to gain more insight and greater value from a range of data sources and applications. After running the Oracle Fusion applications, you can configure Oracle Business Intelligence Applications to analyze the history and trends of transactional data.

For Oracle BI Applications, the Oracle Fusion Applications installation and provisioning process installs the software components in the Business Intelligence Oracle Home but does no further setup. To finish setting up Oracle BI

Applications, you must follow the instructions in the "Setting Up Oracle Business Intelligence Applications" chapter in *Oracle Fusion Middleware Installation and Configuration Guide for Oracle Business Intelligence Applications*.

For information about configuring Oracle BI Applications, see the "Roadmap for Functional Configuration" section in the *Oracle Fusion Middleware Installation and Configuration Guide for Oracle Business Intelligence Applications*.

- Oracle Transactional Business Intelligence is an ad hoc query and self-service analysis solution offered to all Oracle Fusion Applications customers. It uses Oracle BI Enterprise Edition to provide an easy-to-use interface for business users to perform current state analysis of their business applications. Constructed queries and reports are executed in real time against the transactional schema supported by a layer of view objects. Oracle Transactional Business Intelligence enables you to use object data sources in addition to SQL data sources. SQL for the object is coded by the developer, which improves performance and efficiency.

For more information about configuring Oracle Transactional Business Intelligence, see the *Oracle Fusion Applications Installation Guide*.

- Oracle Essbase is an online analytical processing (OLAP) server that provides an environment for deploying prepackaged applications or developing custom analytic and enterprise performance management applications.

For more information, see the *Oracle Essbase Database Administrator's Guide* at http://download.oracle.com/docs/cd/E17236_01/nav/portal_3.htm.

- Oracle Business Intelligence Publisher is an enterprise reporting solution for authoring, managing, and delivering reports from multiple data sources in multiple formats through multiple channels.

For more information, see the "Managing Report Delivery Servers" chapter in the *Oracle Fusion Applications Administrator's Guide*.

- Oracle Real-Time Decisions is a platform that combines both rules and predictive analytics to apply real-time business intelligence at the point of contact to optimize every single interaction with your customers by infusing analytical decisions into each transaction at the point of interaction.

For more information, see the *Oracle Fusion Middleware Platform Developer's Guide for Oracle Real-Time Decisions*.

3.4.3 Oracle Data Integrator

Oracle Data Integrator is a comprehensive data integration platform that covers all data integration requirements: from high-volume, high-performance batch loads, to event-driven, trickle-feed integration processes, to SOA-enabled data services.

Oracle Data Integrator extracts, loads, and transforms data for the Oracle Fusion Applications product families.

For information, see *Oracle Fusion Middleware Getting Started with Oracle Data Integrator* and the *Oracle Fusion Middleware Developer's Guide for Oracle Data Integrator*.

3.4.4 Oracle Enterprise Crawl and Search Framework

Oracle Enterprise Crawl and Search Framework (ECSF) is an Oracle Fusion Middleware search framework with a metadata-driven, declarative design time and runtime interface. It exposes application context information on business objects for full-text transactional search.

The integration of ECSF, Oracle Secure Enterprise Search (Oracle SES), and a source system, such as a relational database where the searchable information resides, forms Oracle Fusion Applications Search. Oracle Fusion Applications Search is the search platform that provides a seamless search experience to the Oracle Fusion Applications user for easily locating and taking action on relevant data.

For more information about Oracle Enterprise Crawl and Search Framework, see the "Getting Started with Oracle Enterprise Crawl and Search Framework" chapter in the *Oracle Fusion Applications Developer's Guide*.

This section contains the following topics:

- [Section 3.4.4.1, "Core Benefits of Oracle Enterprise Crawl and Search Framework"](#)
- [Section 3.4.4.2, "Key Components of Oracle Enterprise Crawl and Search Framework"](#)
- [Section 3.4.4.3, "Key Concepts of Oracle Enterprise Crawl and Search Framework"](#)
- [Section 3.4.4.4, "Oracle Enterprise Crawl and Search Framework Security"](#)

3.4.4.1 Core Benefits of Oracle Enterprise Crawl and Search Framework

Benefits of ECSF include:

- Transparent integration of applications with search engines, which minimizes development time and maximizes the user experience with search
- Code reuse, through use of a well-designed set of abstract classes, to reduce long design cycles
- Basic platform for developing a search mechanism, which helps new developers grasp the conceptual flow of work easily
- Centralized process and control mechanism, which enhances search functionality
- Wide range of optimizations that offer better control to leverage search results

3.4.4.2 Key Components of Oracle Enterprise Crawl and Search Framework

ECSF includes these high-level components:

- Searchable Object Manager
- Search Designer
- Semantic Engine
- Fusion Applications Control
- ECSF Command Line Administration Utility
- Security Services
- Data Services
- Query Service

For more information about these components, see the "ECSF Architecture" section in the *Oracle Fusion Applications Developer's Guide*.

3.4.4.3 Key Concepts of Oracle Enterprise Crawl and Search Framework

Key ECSF features that are built on top of Oracle Secure Enterprise Search and enhance the Oracle Fusion Applications user experience when searching include:

- Basic search, which enables queries based on keyword and search category.

- Advanced search, which enables queries based on a keyword, a search category, and up to 100 attribute filters.
- Faceted navigation, which enables the filtering of search results based on attributes of the business objects. Users can navigate a search result set based on a set of predefined facets, or dimensions. This feature returns a list of facets and their associated set of available values with the search result. Users can select a value for each facet, which is then submitted with the search query in order to narrow down the result set.
- Actionable results, which are search results with action links associated with the searchable objects. From the search results users can either go straight to the page displaying the record they selected, or they can invoke a specific task on a search result.
- Saved searches, which enables saved search criteria for later use. Users can create new saved search entries, edit and delete existing saved search entries, and retrieve user-specified or public saved search entries.
- File attachments, which enable the crawling of attachments that are associated with Oracle Fusion Applications transactional objects or records.
- Crawling, or gathering information from, Oracle WebCenter Portal tags, which supports crawling searchable objects that contain WebCenter Portal tags.
- Crawling tree structures, which supports search functionality on source systems containing data that is organized in a tree structure (for example, Oracle Business Intelligence Catalog).
- Search support for external data sources, which enables querying against search groups that contain external data sources, which are non-ECSF related data sources, such as wiki pages and blogs, that are directly crawled by Oracle SES.

For more information about these concepts and features, see the "Using Oracle Enterprise Crawl and Search Framework" part in the *Oracle Fusion Applications Developer's Guide*.

3.4.4.4 Oracle Enterprise Crawl and Search Framework Security

Oracle Enterprise Crawl and Search Framework security is based on the following concepts:

- Securing ECSF credentials: ECSF uses these credentials to communicate with Oracle Secure Enterprise Search (Oracle SES) administration service, Oracle SES query service, and ECSF Security Service. ECSF credentials are stored in the Credential Store Framework (CSF) of the Oracle WebLogic Server domain.
- Authorizing Users for Search Feeds: Users will not be authorized to access search feeds until the application's `jazn-data.xml` file is updated manually to grant them access.
- Securing the Searchable Application Data: ECSF authenticates and authorizes all users who use it to perform searches. Searchable Application data can be secured by enabling the use of the security model for authenticating and authorizing users.

For more information, see the "Configuring ECSF Security" chapter in the *Oracle Fusion Applications Developer's Guide*.

3.4.5 Oracle Enterprise Scheduler

Oracle Enterprise Scheduler provides the ability to define, schedule, and run different types of jobs. You can run jobs on demand, or schedule them to run in the future.

Oracle Enterprise Scheduler allows you to manage the complete lifecycle of a job definition: development, distribution, scheduling, and monitoring. With Oracle JDeveloper, application developers can easily create and implement jobs for Oracle Enterprise Scheduler.

For more information about Oracle Enterprise Scheduler, see the "Working with Extensions to Oracle Enterprise Scheduler" chapter in the *Oracle Fusion Applications Developer's Guide* and the *Oracle Fusion Middleware Developer's Guide for Oracle Enterprise Scheduler*.

This section contains the following topics:

- [Section 3.4.5.1, "Core Benefits of Oracle Enterprise Scheduler"](#)
- [Section 3.4.5.2, "Key Components of Oracle Enterprise Scheduler"](#)
- [Section 3.4.5.3, "Key Concepts of Oracle Enterprise Scheduler"](#)
- [Section 3.4.5.4, "Oracle Enterprise Scheduler Security"](#)

3.4.5.1 Core Benefits of Oracle Enterprise Scheduler

Oracle Enterprise Scheduler provides support for the following features:

- Workshifts enable you to configure windows of time during which jobs can run, such as running high CPU jobs only at night.
- Job dependencies and incompatibilities enable you to, for example, run import jobs before report jobs, or ensure that a payroll job does not run at the same time as a salary increase.
- Throttling and prioritization using work assignments enable you to, for example, ensure that no more than 70 Oracle Fusion Financials jobs should run concurrently. A newly submitted Oracle Fusion Customer Relationship Management job should not wait for 5,000 Oracle Fusion Financials jobs to execute.

3.4.5.2 Key Components of Oracle Enterprise Scheduler

Oracle Enterprise Manager Fusion Applications Control (Fusion Applications Control) enables you to start and stop, monitor, configure, and manage Oracle Enterprise Scheduler services, components, and job requests.

The main Oracle Enterprise Scheduler page provides information for you to monitor activity and diagnose problems.

3.4.5.3 Key Concepts of Oracle Enterprise Scheduler

Oracle Enterprise Scheduler provides scheduling services for the following purposes:

- To distribute job request processing across a grid of application servers
- To run Java, PL/SQL, spawned jobs, binary processes, and Oracle Business Intelligence Publisher reports
- To process multiple jobs concurrently
- To schedule job requests to run a single time in the future, on a recurring basis, or based on triggering events
- To run the same job in different languages

3.4.5.4 Oracle Enterprise Scheduler Security

Oracle Enterprise Scheduler security is based on the following concepts:

- Enforcing access control on metadata access: Oracle Enterprise Scheduler checks whether a user has the necessary permissions to access resources, such as metadata objects, when using the `RuntimeService` or `MetadataService`.
You can use either Oracle JDeveloper Tools Oracle ADF Security Wizard or Oracle JDeveloper Oracle Enterprise Scheduler add-in metadata pages to associate metadata objects with one or more job roles and specify actions for each role.
- Using access control for job requests: Access and modification rights to data records are enforced by Oracle Fusion Data Security for Oracle Fusion Applications. Oracle Fusion Data Security integrates with Oracle Platform Security Services (OPSS) by granting actions to OPSS principals. The grant defines who (the principal) can do what (the actions) on a resource. A grant in Oracle Fusion Data Security can use any enterprise user or enterprise group as principals.
- Using application identities to elevate privileges for scheduled jobs: Oracle Enterprise Scheduler supports the use of application identities. Application identities allow for the completion of jobs that require higher privileges than the submitting user has.

For more information, see the "Oracle Enterprise Scheduler Security" section in the *Oracle Fusion Applications Developer's Guide*.

3.4.6 Oracle HTTP Server

Oracle HTTP Server (OHS) is a web server based on the Apache HTTP Server infrastructure. It provides a web listener for applications and the framework for hosting static and dynamic pages and applications over the web. OHS includes significant enhancements that facilitate load balancing, administration, and configuration. Features such as single sign-on, clustered deployment, and high availability enhance the operation of OHS.

OHS enables developers to program their site in a variety of languages and technologies, such as Perl, C, C++, PHP, and Oracle PL/SQL. It can also be a proxy server, both forward and reverse. A reverse proxy server enables content served by different servers to appear as if coming from one server.

For more information, see the *Oracle Fusion Middleware Administrator's Guide for Oracle HTTP Server*.

3.4.7 Oracle HTTP Server WebGate

Oracle HTTP Server WebGate is a web server plug-in that is shipped ready-to-use with Oracle Access Manager. Oracle HTTP Server WebGate intercepts HTTP requests from users for web resources and forwards them to the access server for authentication and authorization.

For more information, see the *Oracle Fusion Middleware Administrator's Guide for Oracle Access Manager with Oracle Security Token Service*.

3.4.8 Oracle Identity Management

Oracle Identity Management is an enterprise identity management system that automatically manages user access privileges across all resources in an enterprise. It provides a shared infrastructure for all applications and management throughout the entire identity management lifecycle: from initial creation of access privileges to dynamically adapting to changes in enterprise business requirements. It also provides services and interfaces that facilitate third-party enterprise application development.

These interfaces are useful for application developers who must incorporate identity management into applications.

Oracle Identity Management includes the following components:

- Oracle Access Manager provides an identity management and access control system that is shared by all your applications. The result is a centralized and automated Oracle Single Sign-On (SSO) solution for managing who has access to what information across your entire IT infrastructure.

For more information, see the *Oracle Fusion Middleware Administrator's Guide for Oracle Access Manager with Oracle Security Token Service*.

- Oracle Authorization Policy Manager is a GUI tool for managing the authorization policy for applications based on Oracle Platform Security Services.

For more information, see the *Oracle Fusion Middleware Oracle Authorization Policy Manager Administrator's Guide (Oracle Fusion Applications Edition)*.

- Oracle Identity Manager is a user provisioning and administration solution that automates the process of adding, updating, and deleting user accounts from applications and directories. It improves regulatory compliance by providing detailed reports that identify which users have access to which applications.

For more information, see the *Oracle Fusion Middleware Administrator's Guide for Oracle Identity Manager*.

- Oracle Internet Directory serves as the central user repository for Oracle Identity Management, simplifying user administration in the Oracle environment and providing a standards-based general purpose directory for the diverse enterprise.

For more information, see the *Oracle Fusion Middleware Administrator's Guide for Oracle Internet Directory*.

- Oracle Virtual Directory is a Lightweight Directory Access Protocol (LDAP) service that provides a single, abstracted view of enterprise directory servers and databases from a variety of vendors. Oracle Virtual Directory can serve as a single source of facts in an environment with multiple data sources.

For more information, see the *Oracle Fusion Middleware Administrator's Guide for Oracle Virtual Directory*.

For more information about Oracle Identity Management, see the *Oracle Fusion Middleware Administrator's Guide for Oracle Directory Integration Platform*.

3.4.9 Oracle Secure Enterprise Search

Oracle Secure Enterprise Search (Oracle SES) provides a familiar user interface to Internet search users and enables a high-quality, secure search across all enterprise information data sources—websites, file servers, content management systems, enterprise resource planning and customer relationship management systems, business intelligence systems, and databases.

Oracle SES is the search engine for Oracle Fusion Applications Search. It provides the fundamental search capability that includes indexing, querying, and some value-added functionality such as security.

For more information, see the "Managing Search with Oracle Enterprise Crawl and Search Framework" chapter in the *Oracle Fusion Applications Administrator's Guide*.

For general information on the search engine for Oracle Fusion Applications Search, see the *Oracle Secure Enterprise Search Administrator's Guide*.

3.4.10 Oracle SOA Suite

Oracle SOA Suite is a single process platform for human-centric, system-centric, and document-centric business processes. It is also a complete and integrated process foundation that connects IT, business users, customers, and partners with the applications and processes that drive business. Oracle SOA Suite offers developers drag and drop composition and revision of business processes, resulting in reuse, faster application development, assembly, and solution delivery. The event delivery network of Oracle SOA Suite unifies business events and services in a single declarative environment.

Oracle SOA Suite is a comprehensive, hot-pluggable software suite for building, deploying, and managing a service-oriented architecture (SOA). The components of the suite benefit from common capabilities that include consistent tooling, a single deployment and management model, end-to-end security, and unified metadata management.

For more information about the Oracle SOA Suite, see *Oracle Fusion Middleware Getting Started with Oracle SOA Suite* at http://docs.oracle.com/cd/E23943_01/doc.1111/e10223/index.htm.

3.4.11 Oracle Web Services Manager Policy Manager

Oracle Web Services Manager (Oracle WSM) provides a policy framework to manage and secure web services consistently across your organization. The framework includes the Oracle Web Services Manager Policy Manager (Oracle WSPM) that enables you to centrally define policies. It reads and writes the policies, including predefined and custom policies, from the Oracle WSM Repository.

For more information, see the *Oracle Fusion Middleware Introducing WebLogic Web Services for Oracle WebLogic Server*.

3.4.12 Oracle WebCenter Content

Oracle WebCenter Content provides an integrated suite of products designed for managing content. It features the following components:

- Oracle WebCenter Content enables you to leverage document management, web content management, digital asset management, and records retention functionality to build and complement your business applications.

Oracle Fusion Applications leverages Oracle WebCenter Content to implement Attachments. The Attachment component provides a declarative programming mechanism for adding attachments to the UI pages that you create for Oracle Fusion web applications.

For more information about Oracle WebCenter Content, see the *Oracle WebCenter Content System Administrator's Guide for Content Server*.

- Web Center Content: Oracle Inbound Refinery is a conversion server that manages file conversions for electronic assets such as documents, digital images, and video. It also provides thumbnail functionality for documents and images, story boarding for video, and the ability to extract and use EXIF data from digital images and XMP data from electronic files generated from programs such as Adobe Photoshop and Adobe Illustrator.
- Oracle WebCenter Content: Imaging provides organizations with a scalable solution upon which to develop process-oriented imaging applications and image-enablement solutions for enterprise applications.

Note: Oracle Fusion Applications implements Oracle WebCenter Content: Imaging in Advanced Queuing mode, which has implications for what administration features can be used. For example, you cannot use the Oracle WebCenter Content: Imaging Work Manager for Oracle Fusion Applications.

For more information, see the *Oracle WebCenter Content Administrator's Guide for Imaging*.

These components can be deployed as applications to an Oracle WebLogic Server domain.

3.4.13 Oracle WebCenter Portal

Oracle WebCenter Portal contains an integrated set of components for building social applications, enterprise portals, collaborative communities or social sites, and composite applications. Built on a standards-based, service-oriented architecture, Oracle WebCenter Portal combines dynamic user interface technologies with which to develop rich internet applications, the flexibility and power of an integrated, multichannel portal framework, and a set of horizontal Enterprise 2.0 capabilities delivered as services that provide content, collaboration, presence, and social networking capabilities.

An Oracle WebCenter Portal instance is installed and provisioned as part of the Oracle Fusion Applications installation and provisioning process. This instance integrates Oracle WebCenter Portal functionality into Oracle Fusion Applications.

Oracle WebCenter Portal includes four components:

- Oracle WebCenter Portal: Framework, an Oracle JDeveloper design time extension that enables you to embed portlets, Oracle Application Development Framework (Oracle ADF) taskflows, content, and customizable components in your applications.
- Oracle WebCenter Services, a set of independently deployable collaboration services, that incorporates Web 2.0 components such as content, collaboration, and communication services. Oracle WebCenter Services includes task flows or portlets that can be embedded directly into Oracle ADF applications. In addition, you can use APIs to create custom UIs and to integrate some of these services into non-Oracle ADF applications.
- Oracle WebCenter Portal: Spaces, a closed source application built on Oracle WebCenter Portal: Framework and Oracle WebCenter Services that offers a configurable work environment that enables individuals and groups to work and collaborate more effectively.

Oracle Fusion Applications leverages Oracle WebCenter Portal: Spaces to incorporate collaborative features into Oracle Fusion Applications. Notable features include Activity Streams, Tags, and Group Spaces. These features allow users to collaborate across Oracle Fusion Applications.

- Composer, a tool that enables any application or portal to be customized or personalized after it has been deployed and is in use. Integrated with Oracle WebCenter Portal: Framework and Oracle WebCenter Services, it is used extensively inside WebCenter Portal: Spaces to enable you to customize and personalize group and personal spaces.

Oracle Fusion Applications leverages Composer so that administrators and users can customize Oracle Fusion Applications pages after they have been deployed.

For more information about Oracle WebCenter Portal, see the *Oracle Fusion Middleware Developer's Guide for Oracle WebCenter Portal (Oracle Fusion Applications Edition)* and the *Oracle Fusion Middleware Administrator's Guide for Oracle WebCenter Portal*.

3.4.14 Oracle WebLogic Communication Services

Oracle WebLogic Communication Services provides click-to-dial functionality for applications through contextual actions. The Third Party Call Web service, a part of Oracle WebLogic Communication Services, provides users with a way to initiate a web call between two parties from an application.

For more information, see the "Managing Oracle WebLogic Communication Services for Click-to-Dial Functionality" chapter in the *Oracle Fusion Applications Administrator's Guide*.

3.4.15 Oracle WebLogic Server

Oracle WebLogic Server is an enterprise-ready Java application server that supports the deployment of many types of distributed applications in a robust, secure, highly available, and scalable environment. Oracle WebLogic Server is an ideal foundation for building and deploying enterprise Java EE applications based on service-oriented architecture (SOA).

Oracle Fusion applications are deployed to Oracle WebLogic Server instances.

For more information, see the "Oracle WebLogic Server" section in the *Oracle Fusion Middleware Concepts Guide* and *Oracle Fusion Middleware Introduction to Oracle WebLogic Server*.

3.5 Oracle Database

Oracle Database is an important component in your Oracle Fusion Applications environment. This section describes concepts key to understanding how Oracle Database works with Oracle Fusion Applications.

This sections contains the following topics:

- [Section 3.5.1, "Oracle Database Instances for Oracle Fusion Applications"](#)
- [Section 3.5.2, "Oracle Fusion Applications Database Schemas"](#)

3.5.1 Oracle Database Instances for Oracle Fusion Applications

All Oracle Fusion Applications environments require the following Oracle Database instances:

- Oracle Database instances for Oracle Identity Management: one instance is required for the Policy Store, and another instance is required for the Identity Store.

For more information about installing Oracle Identity Management components for Oracle Fusion Applications, see the "Installing Oracle Identity Management Components" section of the *Oracle Fusion Applications Installation Guide*.

- The transaction database for Oracle Fusion Applications: the transaction database is used to store and retrieve all transactional and reference data and to store design-time data in repositories. After installation and configuration, the

transactional database contains applications and middleware schemas, seed data, the tablespaces, and all other required packages.

For more information about the transaction database, see the "Installing a Transaction Database" chapter in the *Oracle Fusion Applications Installation Guide*.

If you are implementing Oracle Business Intelligence Data Warehouse, you must install an additional database instance for the following components:

- Data Warehouse Administration Console (DAC)
- Informatica
- a Data Warehouse

3.5.2 Oracle Fusion Applications Database Schemas

Before provisioning a new environment, you use the Oracle Fusion Applications Repository Creation Utility to create Oracle Fusion Applications-specific schemas and tablespaces in the transaction database. For a partial list of the schemas created with the Repository Creation Utility, see the "Schema Owners" section in the *Oracle Fusion Applications Installation Guide*.

The FUSION, FUSION_RUNTIME, and FUSION_DYNAMIC schemas are created to ensure a secure database environment for Oracle Fusion Applications. [Table 3–2](#) describes these schemas.

Table 3–2 Description of FUSION Schemas

Schema	Description
FUSION	<p>This schema owns all objects belonging to Oracle Fusion Applications.</p> <p>Runtime users do not have direct access to this schema. This protects the objects stored in this schema from being modified by runtime users.</p>
FUSION_RUNTIME	<p>This is the runtime user schema. All Oracle Fusion Applications use this schema to connect to the database at runtime.</p> <p>When using this schema, runtime users are granted minimal permissions to objects owned by the FUSION schema. This prevents users from altering base Oracle Fusion Applications objects owned by the FUSION schema.</p>
FUSION_DYNAMIC	<p>Dynamically-created objects are created in this schema.</p> <p>This schema ensures that dynamically-created objects can not modify base objects or alter sensitive information stored in the FUSION schema.</p>

For more information about Oracle Database, see *Oracle Database 2 Day DBA*.

Key Management Tools and Processes

All Oracle Fusion Applications product families share a set of common administration, development, and implementation tools. Common administration processes allow you to perform routine administrative tasks on the entire Oracle Fusion Applications environment instead of performing these tasks on each component or product family.

This chapter contains the following sections:

- [Section 4.1, "Administration Tools"](#)
- [Section 4.2, "Administration Processes"](#)
- [Section 4.3, "Implementation and Development Tools"](#)

4.1 Administration Tools

Oracle provides several tools to manage Oracle Fusion Applications, the Oracle Fusion Middleware layer, and Oracle Database within your Oracle Fusion Applications environment. Use these tools to perform all management tasks.

You can manage your environment for Oracle Fusion Applications by using the following management tools:

- Oracle Enterprise Manager Fusion Applications Control to monitor and administer a product family and Oracle Fusion Middleware components within the Oracle Fusion Applications environment.
For information, see [Section 4.1.1, "Oracle Enterprise Manager Fusion Applications Control"](#).
- Oracle WebLogic Server Administration Console to manage Oracle WebLogic Server in each domain and to view and manage policies of enterprise applications.
For information, see [Section 4.1.2, "Oracle WebLogic Server Administration Console"](#).
- Oracle WebLogic Scripting Tool to manage the Oracle Fusion Middleware components.
For information, see [Section 4.1.3, "Oracle WebLogic Scripting Tool"](#).
- Oracle Process Manager and Notification Server to manage the Oracle Fusion Middleware components.
For information, see [Section 4.1.4, "Oracle Process Manager and Notification Server"](#).
- Oracle Authorization Policy Manager to manage application policies.

For information, see the *Oracle Fusion Middleware Oracle Authorization Policy Manager Administrator's Guide (Oracle Fusion Applications Edition)*.

- Oracle Access Manager Administration Console to manage system configurations, including Oracle Access Manager server instances and data sources, access policies, agent profiles, and other security elements.

For information, see the *Oracle Fusion Middleware Administrator's Guide for Oracle Access Manager with Oracle Security Token Service*.

- Oracle Identity Manager Administrative and User Console to enable users to access the organization's resources (through self-service) and enable administrators to manage the access (by creating users and roles, and defining authorization policies).

For information, see the *Oracle Fusion Middleware Administrator's Guide for Oracle Directory Integration Platform*.

- Oracle Enterprise Manager Database Control to monitor and manage Oracle Database for Oracle Fusion Applications.

For information, see *Oracle Database 2 Day DBA*.

- Oracle Enterprise Manager Cloud Control to monitor multiple Oracle Fusion Middleware farms and Oracle WebLogic Server domains and to help you manage Oracle Fusion Middleware and Oracle WebLogic Server more effectively and efficiently.

For information, see the "Oracle Enterprise Manager Cloud Control" section in the *Oracle Fusion Applications Administrator's Guide*.

- Logging and Diagnostic Testing Framework to track the standard operations of Oracle Fusion Applications, to verify that your Oracle Fusion Applications are operating correctly, and to help diagnose and resolve problems with Oracle Fusion Applications.

For more information, see [Section 4.2.1, "Logging and Diagnostic Testing Frameworks"](#).

4.1.1 Oracle Enterprise Manager Fusion Applications Control

Fusion Applications Control allows you to monitor a product family and its products. It also enables you to monitor and administer Oracle Fusion Applications and an Oracle Fusion Middleware farm.

Fusion Applications Control provides all the functionality available in Fusion Middleware Control and adds functionality specific to Oracle Fusion Applications.

You can use Fusion Applications Control to perform the following tasks:

- Start and stop Oracle WebLogic Server instances
- Deploy and monitor SOA Composite applications
- Modify Oracle BPEL Process Manager MBean properties
- Debug applications such as Oracle BPEL Process Manager applications
- Deploy Oracle ADF applications
- Configure and manage auditing
- Configure Secure Sockets Layer (SSL) for Java components and system components

- View most log files
- Configure most settings that determine information to be logged
- Change ports for some system components
- Manage Oracle HTTP Server
- Start and stop components and applications

For more information, see the "Getting Started with Administering Oracle Fusion Applications" chapter in the *Oracle Fusion Applications Administrator's Guide*.

4.1.2 Oracle WebLogic Server Administration Console

The Oracle WebLogic Server Administration Console is a Web browser-based, graphical user interface that you can use to manage an Oracle WebLogic Server domain. It is accessible from any supported Web browser with network access to the Administration Server.

You can use the Oracle WebLogic Server Administration Console to perform the following tasks in the Oracle Fusion Applications environment:

- Create, clone, and cluster Managed Servers
- Configure, start, and stop Oracle WebLogic Server
- Create data sources and connection pools
- Create JMS queues
- Configure advanced queuing
- Deploy Java EE applications
- Configure SSL for Oracle WebLogic Server
- Change passwords
- View and manage log files, for example:
 - `DOMAIN_HOME/servers/server_name/logs/access.log`
 - `DOMAIN_HOME/servers/server_name/data/ldap/log/EmbeddedLDAP.log`
 - `DOMAIN_HOME/servers/server_name/data/ldap/log/EmbeddedLDAPAccess.log`
- Change ports for Oracle WebLogic Server and Java components

For more information, see the "Getting Started Using Oracle WebLogic Server Administration Console" section in the *Oracle Fusion Middleware Administrator's Guide*.

4.1.3 Oracle WebLogic Scripting Tool

The Oracle WebLogic Scripting Tool is a command-line scripting environment that you can use to create, manage, and monitor Oracle WebLogic Server domains. It is based on the Java scripting interpreter, Jython. In addition to supporting standard Jython features such as local variables, conditional variables, and flow control statements, Oracle WebLogic Scripting Tool provides a set of scripting functions (commands) that are specific to Oracle WebLogic Server. You can extend the Oracle WebLogic Server scripting language to suit your needs by following the Jython language syntax.

You can use any of the following modes to invoke Oracle WebLogic Scripting Tool commands:

- Interactive mode, in which you enter a command and view the response at a command-line prompt
- Script mode, which invokes a sequence of Oracle WebLogic Scripting Tool commands without requiring your input
- Embedded mode, in which you instantiate the Oracle WebLogic Scripting Tool interpreter in your Java code and use it to run Oracle WebLogic Scripting Tool commands and scripts

Oracle WebLogic Scripting Tool uses the Oracle WebLogic Server Security Framework to prevent unauthorized users from modifying a domain or from viewing encrypted data.

For more information, see *Oracle Fusion Middleware Oracle WebLogic Scripting Tool*.

4.1.4 Oracle Process Manager and Notification Server

Oracle Process Manager and Notification Server manages and monitors Oracle HTTP Server and Oracle Business Intelligence for Oracle Fusion Applications.

For more information, see the "Getting Started Using Oracle Process Manager and Notification Server" section in the *Oracle Fusion Middleware Administrator's Guide*.

4.2 Administration Processes

All Oracle Fusion Applications product families share a common set of administration processes. This section describes the concepts on which these procedures are based.

This section contains the following topics:

- [Section 4.2.1, "Logging and Diagnostic Testing Frameworks"](#)
- [Section 4.2.2, "Scalability"](#)
- [Section 4.2.3, "High Availability"](#)
- [Section 4.2.4, "Load Balancing"](#)
- [Section 4.2.5, "Backup and Recovery"](#)
- [Section 4.2.6, "Moving Oracle Fusion Applications"](#)
- [Section 4.2.7, "Patching"](#)

4.2.1 Logging and Diagnostic Testing Frameworks

Log files, incidents, QuickTrace, and diagnostic tests all gather and store information about what happens when Oracle Fusion Applications operates. You can use these tools to verify and monitor standard operations and to troubleshoot problems. You can run diagnostic tests and view the results via diagnostic reports with the Diagnostic Testing Framework for Oracle Fusion Applications. Support Workbench, a part of Oracle Enterprise Manager Cloud Control, allows you to perform additional diagnostic operations.

For more information, see the "Managing Oracle Fusion Applications Log Files and Diagnostic Tests" and "Troubleshooting Oracle Fusion Applications Using Incidents, Logs, QuickTrace, and Diagnostic Tests" chapters in the *Oracle Fusion Applications Administrator's Guide*.

For more information about the Diagnostic Framework, see the "Diagnosing Problems" chapter in the *Oracle Fusion Middleware Administrator's Guide*.

4.2.2 Scalability

Scalability indicates the ability of a system to easily handle growing amounts of work or be readily enlarged. For example, a scalable system can handle increasing numbers of requests without adversely affecting response time and throughput.

In Oracle Fusion Applications, you can scale up or scale out the topology. When you scale up the topology, you add new Managed Servers to existing systems that are already running one or more Managed Servers. When you scale out the topology, you add new Managed Servers to new systems.

Scaling out enables organizations to improve application performance, scalability, and availability on an incremental, as-needed basis by adding multiple replicated servers. You can also use a scale-out operation to move from a non-high availability deployment to a high availability deployment.

For more information, see the "Configuring High Availability and Scaling Out Oracle Fusion Applications" chapter in the *Oracle Fusion Applications Administrator's Guide*.

4.2.3 High Availability

High availability refers to the ability of users to access a system without loss of service. Deploying a highly available system maximizes the time when it is available.

Providing high availability for Oracle Fusion Applications involves configuring an Oracle WebLogic Server cluster for high availability of the middle tiers and configuring Oracle Real Applications Clusters (Oracle RAC) for high availability of Oracle Database. It also involves scaling out Oracle Fusion Applications and Oracle RAC database instances.

For more information about Oracle RAC for Oracle Fusion Applications, see the "Oracle RAC Database Configuration for Oracle Fusion Application Repositories" section in the *Oracle Fusion Applications Administrator's Guide*.

An Oracle WebLogic Server cluster consists of multiple Oracle WebLogic Server instances running simultaneously and working together to provide increased scalability and reliability. A cluster appears to clients to be a single Oracle WebLogic Server instance. The server instances that constitute a cluster can run on the same system, or be located on different systems. You can increase a cluster's capacity by adding additional server instances to the cluster on an existing system, or you can add systems to the cluster to host the incremental server instances. Each server instance in a cluster must run the same version of Oracle WebLogic Server.

Oracle Fusion Applications is always deployed in a cluster to provide for future performance and scalability requirements. Even in a single instance deployment, the Oracle Fusion Applications instance is part of a cluster with one member.

For information about high availability, see the "Oracle Fusion Middleware High Availability Framework" chapter in the *Oracle Fusion Middleware High Availability Guide*.

For an overview of high availability from a problem/solution perspective, see the "High Availability" section in *Oracle Fusion Middleware Concepts Guide*.

4.2.4 Load Balancing

Load balancing is the even distribution of jobs and associated communications across the computing and networking resources in your environment. For load balancing to occur:

- There must be multiple copies of an object that can do a particular job.

- Information about the location and operational status of all objects must be available.

Oracle Fusion Applications deployments are front ended by a load balancer that can be configured to distribute incoming requests using various algorithms.

Oracle Fusion Applications also has built-in load balancing capabilities for interaction between components, for example, Web server to application server (using the `mod_weblogic` module in Oracle HTTP Server) or application server to database server (using Oracle WebLogic Server's multi pool data source). In production, you should use a hardware load balancer.

4.2.5 Backup and Recovery

An Oracle Fusion Applications environment can consist of different Oracle Fusion Applications product families. The environment is built on Oracle Fusion Middleware and uses multiple Oracle Database instances to store data and metadata. It is important to consider all of these components when performing backup and recovery tasks so that, if a loss occurs, you can restore your environment to a consistent state.

Oracle Fusion Applications gives you many backup and recovery options. For more information, see the "Backing Up and Recovering Oracle Fusion Applications" chapter in the *Oracle Fusion Applications Administrator's Guide*.

4.2.6 Moving Oracle Fusion Applications

Replicating an Oracle Fusion Applications environment requires moving Oracle Fusion Applications components from one environment to another. This task is simplified by movement tools (scripts for moving binary and configuration information). These tools minimize the amount of work that would otherwise be required to reapply all the customization and configuration changes made in one environment to another.

For more information, see the "Moving from a Test to Production Environment for Oracle Fusion Applications Provisioning Environments" chapter in the *Oracle Fusion Applications Administrator's Guide*.

4.2.7 Patching

The lifecycle of Oracle Fusion Applications begins with its installation and continues with ongoing patching and maintenance activities. The Oracle Fusion Applications patching framework provides the tools needed to support updates to Oracle Fusion Applications software between major releases.

This framework provides the following tools:

- Oracle Fusion Applications Patch Manager, for applying standard and one-off patches
- Oracle Fusion Applications Release Update Patch Installer, for installing Release Update Patches
- Oracle Fusion Applications Language Pack Installer, for adding languages to Oracle Fusion Applications
- AD Administration, for performing maintenance tasks to keep the Oracle Fusion Applications system running smoothly after its installation
- AD Controller, for determining the status of AD Administration or Oracle Fusion Applications AutoPatch workers and for controlling their actions

- HomeChecker, for verifying the correctness of any Oracle Fusion Applications Oracle home directory

For more information, see the *Oracle Fusion Applications Patching Guide*.

4.3 Implementation and Development Tools

Oracle Fusion Applications includes Oracle JDeveloper, a tool used to develop, extend, and deploy applications. Oracle Fusion Applications also includes Oracle Fusion Functional Setup Manager, a tool used to manage setup data and post-install tasks.

This section contains the following topics:

- [Section 4.3.1, "Oracle JDeveloper"](#)
- [Section 4.3.2, "Oracle Fusion Functional Setup Manager"](#)

4.3.1 Oracle JDeveloper

Oracle JDeveloper is the integrated development environment (IDE) used for Oracle Fusion Applications. JDeveloper is used for building service-oriented applications using the latest industry standards for Java, XML, web services, SQL, and SCA. It supports the complete development lifecycle with integrated features for modeling, coding, debugging, testing, profiling, tuning, and deploying applications. User-friendly wizards are provided to simplify many common tasks such as connecting to IT systems.

For more information on how to use JDeveloper for Oracle Fusion Applications, see the *Oracle Fusion Applications Developer's Guide*.

For general information about JDeveloper, see the JDeveloper online help.

4.3.2 Oracle Fusion Functional Setup Manager

Oracle Fusion Functional Setup Manager provides a single user interface for performing all tasks related to Oracle Fusion Applications setup after installation and helps you to easily move the setup data between instances to reduce implementation time.

Oracle Fusion Applications developers integrate Applications Core setup UI task flows with Functional Setup Manager to make these task flows available to administrators, implementers, and other developers, allowing them to configure applications by creating set up data.

For more information, see the *Oracle Fusion Functional Setup Manager User's Guide*, the *Oracle Fusion Applications Common Implementation Guide*, and the "Integrating Oracle Fusion Middleware Extensions for Applications (Applications Core) Setup UIs" section in the *Oracle Fusion Applications Developer's Guide*.

