

What's New for Oracle Fusion Analytics Warehouse

Here's an overview of the features and enhancements added recently to improve your Oracle Fusion Analytics Warehouse experience.

To learn about the types of Oracle Fusion Analytics Warehouse releases, see [About Oracle Fusion Analytics Warehouse Releases](#).

Topics

- [22.R1](#)
- [Earlier Releases](#)

For the latest Oracle Fusion Analytics Warehouse news, product updates, customer and partner stories, and market insights, see <https://blogs.oracle.com/analytics>.

22.R1

Release Date	Description
22.R1	Major release with updates for Fusion ERP Analytics, Fusion HCM Analytics, and Fusion SCM Analytics.
Platform 22.R1	Major release with updates to your environment. This update includes no changes to the application data or content but does include the features outlined in the "Platform 22.R1 - March 2022" section. The approximate date for your environment to be updated to this release is March 17, 2022.
22.R1.P1	Application Update to address these changes: <ul style="list-style-type: none">• Oracle Fusion ERP Analytics - Removed the Oracle Fusion ERP Analytics parameter dependencies from other modules that impacted the standalone deployment of the modules and lead to blank reports when you use dimensions like ledger in the reports.• Oracle Fusion HCM Analytics - Set the session variables to execute when they are actually used in a session. Previously, the session variables were set to execute with sign-in.

Release Date	Description
22.R1.P2	Application Update to ensure that personal information isn't visible in the Usage Tracking reports for confidentiality purposes.
22.R1.P4	Application Update to ensure that the data roles related to the dimension security filter enable you to build analysis in the Procurement functional area without errors.

Platform 22.R1 - March 2022

Feature	Description
Create custom validation sets	You can schedule the validation of your data using the ready-to-use validation sets or custom validation sets that you create. See Validate Your Data .
Remove user groups mapping in bulk	You can remove the user groups mapping in bulk using the "OPERATION" column available in the user groups mapping template files. See Upload and Download User Group Mappings .
Automatically assign licensed groups to the users	You can automatically assign the Oracle Fusion Analytics Warehouse licensed groups to the Oracle Applications Cloud users to provide these users immediate access to Oracle Fusion Analytics Warehouse. See Automatically Assign the Licensed Groups to Users .
Create degenerate dimensions while adding a fact table to a subject area	While specifying the details of the fact table for the selected source table, you can select the attributes for which you need the degenerate dimension to be created. See Add a Fact Table .
Removed Features and Alternatives	To align functionality across Oracle Fusion Analytics and Oracle Analytics Cloud the following features have been removed: <ul style="list-style-type: none"> • Large card view • Customized KPIs • Show Changes view See Alternative Features .

22.R1

This major release update includes new or changed application data or content. You can apply this update yourself by accessing the Console and clicking **Release Updates** under Service Administration and locating **22.R1**. See [Manage Application Updates](#).

General

Feature	Description
View Oracle Fusion Analytics Warehouse in 4 more non-English languages	<p data-bbox="852 289 1398 342">Oracle Fusion Analytics Warehouse supports these additional non-English languages:</p> <ul data-bbox="852 348 1011 468" style="list-style-type: none"><li data-bbox="852 348 1011 373">• Hungarian<li data-bbox="852 380 948 405">• Thai<li data-bbox="852 411 971 436">• Slovak<li data-bbox="852 443 987 468">• Croatian <p data-bbox="852 474 1458 642">When you set one of these languages in your browser settings, elements of Oracle Fusion Analytics Warehouse such as the user interface and auto-generated text are displayed in the selected language. Data visualization multi-language support will only be available in a future release.</p> <p data-bbox="852 657 1458 989">You can specify the language in which you want the data to be extracted using the Analytics Language pipeline parameter. The languages that you can select in the Analytics Language parameter are based on the initialized Oracle Applications Cloud languages. Changes to this global parameter don't take effect immediately even after next refresh and may cause inconsistent results because the refresh brings in only the incremental data in the selected language. You must reset the warehouse for the language changes to be effective. See Set Up the Pipeline Parameters Set Up the Pipeline Parameters.</p>

Oracle Fusion ERP Analytics

Feature	Description
Important: Replace certain existing attributes and folders with the renamed attributes and folders	<p>Replace these existing attributes and folders with the renamed attributes and folders:</p> <ul style="list-style-type: none"> • Replace the Applied to Transaction number with Transaction Number attribute if you've created custom visualizations using GL Account Analysis subject area. The Applied to Transaction Number is hidden from Presentation layer in this release and is planned to be deprecated in a future release. Instead of this attribute, Transaction Number is populated for all Receivables Invoicing accounting distributions as well as the Credit Memo application, Adjustment, and Receipt Application accounting distributions. • Buyer Count, Supplier Count, and Unit Price attributes have been renamed as Buyers Count, Suppliers Count, and Unit Price (Purchase UOM) in the Procurement subject areas. Hence, if you've created custom visualizations using these attributes, then you must re-add the renamed attributes, otherwise the custom visualization will display an error. • Provider and Receiver GL Fiscal date folders have been renamed to Fiscal Calendar and Receiver Fiscal Calendar in the Project Costs and Project Commitments subject areas. Hence, if you've created custom visualizations using attributes from these folders, then you must re-add the attributes from the new folder, otherwise the custom visualization will display an error.

Feature	Description
Enhanced subject areas	<p>These subject areas have been enhanced as follows:</p> <ul style="list-style-type: none"> • All subject areas that have GL Segment hierarchy are enhanced to show Segment levels from Level 31 to Level 1. All customers see Level 31 to Level 22 and depending on the depth of the hierarchy defined in Oracle Applications Cloud, customers see Level 21 to Level 1. Until the prior release, only 10 levels from Level 31 to Level 22 were exposed. • Project Costs and Project Commitments provides ability to analyze by Project Customer, Project Calendar, and Project team members. • Enhanced the AR subject areas to analyze by Ship to Customer and Paying Customer attributes. • Ability to analyze data by Common Party dimension in the AR and AP subject areas. • Provided the ability to perform cross subject area analysis between the Procurement Spend and AP subject areas to view the requisition to pay life cycle. • Provided the ability to perform cross subject area analysis between the SCM Order Management subject area and AR Revenue subject area to view the revenue line details along with sales order attributes, item category, and inventory organization. • Enhanced GL Account Analysis subject area to populate transaction number for all the Receivables accounting distributions. • Support drill capability in the Procurement Category hierarchy in all the procurement subject areas. • Enhanced cross subject area capability between the Requisitions, Purchase Orders, Receipts, and Spend subject areas. • Enhanced the Purchased Order Amount metric in the Purchase Orders subject area.

Feature	Description
Updated subject areas	<p data-bbox="850 289 1446 315">These subject areas have been updated as follows:</p> <ul data-bbox="850 317 1446 968" style="list-style-type: none"><li data-bbox="850 317 1446 430">• Item and Item description attributes under Transaction Line Details of the AR Revenue subject area are hidden and Inventory item is exposed as a common dimension with these attributes.<li data-bbox="850 432 1446 546">• Applied to Transaction Number attribute in GL Account Analysis is hidden because Oracle Fusion ERP Analytics populates the Transaction number attribute for all the applied transactions.<li data-bbox="850 548 1446 609">• Renamed Unit Price to Unit Price (Purchase UOM) in the Receipt subject areas.<li data-bbox="850 611 1446 724">• Renamed Assets Depreciation Reserve Ratio, Assets Average Asset Life - Years and Assets Average Remaining Life - Years KPIs to remove the LC suffix.<li data-bbox="850 726 1446 787">• Renamed Buyer Count to Buyers Count in the Agreements and Spend subject areas.<li data-bbox="850 789 1446 850">• Renamed Supplier Count to Suppliers Count in the Agreements subject area.<li data-bbox="850 852 1446 968">• Renamed Provider and Receiver GL Fiscal date folders to Fiscal Calendar and Receiver Fiscal Calendar in the Project Costs and Project Commitments subject areas.

Feature	Description
Attributes added to existing subject areas	<p>The following subject areas have these additional attributes:</p> <ul style="list-style-type: none"> • Party Name, Party Number, and Party Type added to all the AR and AP subject areas. • D-U-N-S Number, Ship-to Customer attributes, Paying Customer, Customer Account, and site attributes added to the AR Transactions, AR Adjustments, AR Credit Memo Applications, and AR Revenue subject areas. • D-U-N-S Number and Ship-to Customer attributes added to the AR Receipts and Applications subject area. • Added Supplier Site Code attribute to GL Account Analysis and all the AP subject areas. • Added Item as a common dimension in the AR Revenue subject area. • The following subject areas have these new attributes and dimensions: <ul style="list-style-type: none"> – GL Account Analysis: Credit Memo Number, Supplier Site Code. – Project Costs: Project Customer, Project Team Members, Projects Calendar, Original Expenditure Transaction attributes, Work Type (DFF), and Non Labor Resource (DFF). – Project Commitments: Project Customer, Project Team Members, Projects Calendar, and Work type (DFF). – Spend subject area: Requisition Number and Location Type. – Requisition subject area: Line Currency, Unit Price in Line Currency, and Line Amount in Line Currency.
Metrics added to existing subject areas	<p>These subject areas have additional metrics:</p> <ul style="list-style-type: none"> • Added Unaccounted CDL metric to the Project Costs subject area to view the count of unaccounted cost distribution lines. • Added metrics to the Project Commitments subject areas for analyzing requisitions, purchase orders, transfer orders, supplier invoice, external committed costs, transaction specific quantity, and costs. • Added Bonus Depreciation and YTD Bonus Depreciation metrics to the Asset Analysis subject area.
Additional visualizations	<p>Added three pre-packaged visualization projects to help Project Administrators, Project Managers, and Project Accountants to analyze project costs.</p>
Enhanced set of KPIs	<p>Added two KPIs related to Project Commitments.</p>

Feature	Description
Certain view objects are no longer supported as data enrichment source	<p>These view objects are no longer supported as a source for data enrichment:</p> <ul style="list-style-type: none"> FscmTopModelAM.ScMExtractAM.DooBiccExtractAM.SrLookupValuesExtractPVO FscmTopModelAM.ScMExtractAM.DooBiccExtractAM.SrLookupValuesTLExtractPVO FscmTopModelAM.FinGlJrnlSetupCatAM.JournalCategoryBPVO FscmTopModelAM.FinLeLegalEntitiesAM.LegalEntityPVO FscmTopModelAM.FinXlaAmsEventModelsAM.EventTypePVO FscmTopModelAM.FinXlaAmsSetupSlamAM.AcctgMethodPVO
Data validation	<p>These data validation enhancements are available:</p> <ul style="list-style-type: none"> A data validation set for Oracle Fusion ERP Analytics with ability to schedule it. Data validation scripts are available for Employee Expense, AR Revenue, AR Credit Memo Applications, and AR Adjustments. Additional pivot attributes (Ledger and Ledger Currency) added to AP Aging, AP Invoices, and AP Payments data validation metrics.

See Reference for Oracle Fusion ERP Analytics.

Oracle Fusion HCM Analytics

Feature	Description
Enhanced subject areas	<p>These subject areas have been enhanced as follows:</p> <ul style="list-style-type: none"> HCM - Workforce Core subject area has enhancements to include Years of service metric based on person level seniority date, Primary Work Relationship flag attribute and the attributes indicating global transfer in and out transactions are included. The compa ratio attributes are renamed to include the "Calculated" prefix since these are computed values. The renamed attributes are Calculated Compa Ratio and Calculated Compa Ratio On Event. Assignment Manager List dimension is added across multiple subject areas. Workforce Compensation subject area is enhanced to include the worksheet manager list dimension

Feature	Description
Change in calculation logic for the "Years Of Service" measure	<p>To see data in the Years of Service column that is based on the Person Seniority rule, you must have:</p> <ul style="list-style-type: none"> • Implemented version 3 of the Seniority Dates module in Oracle HCM Cloud. • Defined the seniority date rule at Person level for the enterprise attribute without any filters. • Set these values for these attributes: <ul style="list-style-type: none"> – Override Seniority Basis: "Either Days or Hours" OR "Hours" – Active: Yes – Cumulative: Yes • Scheduled the Calculate Seniority Dates process to run on a daily basis in Oracle HCM Cloud.
Additional visualization projects	<p>Workforce Valuation dashboard, HCM Data Validation dashboard and Gains & losses - Internal Mobility visualization projects are available.</p>
Additional application roles	<p>These duty roles are available for access to the Check-Ins subject area:</p> <ul style="list-style-type: none"> • Check Ins Analysis Duty • Check Ins Diversity Analysis Duty
Certain view objects are no longer supported as data enrichment source	<p>These view objects are no longer supported as a source for data enrichment:</p> <ul style="list-style-type: none"> • FscmTopModelAM.ScmExtractAM.EgpBiccExtractAM.ItemClassTranslationExtractPVO • HcmTopModelAnalyticsGlobalAM.HcmProfileCoreAM.PersonProfileItemPVO
Separate duty roles for Performance Management and Check-Ins subject areas	<p>Prior to this release, the Performance Management Analysis Duty and Performance Management Diversity Analysis Duty roles provided access to the Performance Management and Check-Ins subject areas. Henceforth, the Performance Management Analysis Duty and Performance Management Diversity Analysis Duty roles provide access to the Performance Management subject area. The Check Ins Analysis Duty and Check Ins Diversity Analysis Duty roles provide access to the Check-Ins subject area. In the current release, to avoid any regression, the existing the Performance Management Analysis Duty and Performance Management Diversity Analysis Duty roles that give access to the Check-Ins subject area will continue to do so, however, in the future release, only users with the Check Ins Analysis Duty and Check Ins Diversity Analysis Duty roles can access the Check-Ins subject area. Ensure that you add the Check Ins Analysis Duty and Check Ins Diversity Analysis Duty roles that grant access to the Check-Ins subject area to any custom job groups created prior to the current release.</p>

See Reference for Oracle Fusion HCM Analytics.

Oracle Fusion SCM Analytics

Feature	Description
Important: Replace certain existing attributes with the renamed attributes	Replace these existing attributes with the renamed attributes: <ul style="list-style-type: none"> Buyer Count, Supplier Count, and Unit Price attributes have been renamed as Buyers Count, Suppliers Count, and Unit Price (Purchase UOM) in the Procurement subject areas. Hence, if you've created custom visualizations using these attributes, then you must re-add the renamed attributes, otherwise the custom visualization will display an error.
Enhanced subject areas	These subject areas have been enhanced as follows: <ul style="list-style-type: none"> Support drill capability in Procurement Category hierarchy in all the procurement subject areas. Support drill capability in Item Category hierarchy in all the SCM subject areas. Performance improvement in the Item Cost subject area. Ability to do cross subject area between the Sales Orders and Revenue subject areas. Enhanced cross subject area capability between the Requisitions, Purchase Orders, Receipts, and Spend subject areas. Enhanced Purchased Order amount metric in the Purchase Orders subject area. Renamed Unit Price to Unit Price (Purchase UOM) in the Receipt subject areas. Renamed Buyer Count to Buyers Count in the Agreements and Spend subject areas. Renamed Supplier Count to Suppliers Count in the Agreements subject area.
Attributes added to existing subject areas	The following subject areas have these additional attributes and dimensions: <ul style="list-style-type: none"> Spend subject area: Requisition Number and Location Type. Requisition subject area: Line Currency, Unit Price in Line Currency, and Line Amount in Line Currency. Sales Orders subject area: Ledger, Legal Entity, Customer Account (DFF), and Order Date. Sales Order Holds subject area: Ledger, Legal Entity, and Customer Account (DFF). Inventory Transactions subject area: Ledger, Legal Entity, and Creation Date. Inventory Balances subject area: Ledger and Legal Entity. Item Cost subject area: Cost Level.

Feature	Description
Certain view objects are no longer supported as data enrichment source	<p>These view objects are no longer supported as a source for data enrichment:</p> <ul style="list-style-type: none"> FscmTopModelAM.ScMExtractAM.DooBiccExtractAM.SrLookupValuesExtractPVO FscmTopModelAM.FinArTopPublicModelAM.ReceiptMethodPVO FscmTopModelAM.FinGIJrnISetupCatAM.JournalCategoryBPVO FscmTopModelAM.FinGIJrnISetupSrcAM.JournalSourceBPVO FscmTopModelAM.FinLeLegalEntitiesAM.LegalEntityPVO FscmTopModelAM.FinPmtFDPmtMethodAM.PaymentMethodTranslationPVO FscmTopModelAM.FinXlaAmsSetupSlamAM.AcctgMethodPVO

See Reference for Oracle Fusion SCM Analytics.

What's Fixed

For a list of defects fixed in Oracle Fusion ERP Analytics, see [Doc ID 2847935.1](#).

For a list of defects fixed in Oracle Fusion SCM Analytics, see [Doc ID 2847945.1](#).

For a list of defects fixed in Oracle Fusion HCM Analytics, see [Doc ID 2848250.1](#).

Earlier Releases

- [Release 21.R3.P4](#)
- [Release 21.R3.P2](#)
- [Release 21.R2.P7](#)
- [Release 21.R2.P5](#)
- [Release 21.R2.P4](#)
- [Release 21.R2.P2](#)
- [Release 21.R2.P1](#)
- [Release 21.R1.P5](#)
- [Release 21.R1.P4](#)
- [Release 21.R1.P3](#)
- [Release 21.R1.P2](#)
- [Release 21.R1.P1](#)
- [Release 20.R3.P1](#)

- [Release 20.R2.P2](#)
- [Release 20.R2.P1](#)
- [Release 4.0](#)
- [Release 3.1](#)
- [Release 3.0](#)

Release 21.R3.P4 - December 2021

Your environment was updated to this release on Saturday, December 11, 2021. This update includes no changes to the application data or content but does include the features outlined in the following table.

General

Feature	Description
Upload and download your data	Upload and download data such as data security assignments, financial categories, financial category assignments, and user to group associations to your data warehouse using the Upload tile on the Console. See Manage Uploads and Downloads .
Track usage	Usage tracking has been turned on in the Oracle Analytics Cloud instance associated with your Oracle Fusion Analytics Warehouse instance. Usage tracking enables administrators to track user-level queries on the content. Service administrators and functional administrators can track user queries and generate reports and visualizations to analyze the usage data.
Update your application	As a service administrator, you can decide when to uptake the application updates except the emergency patches that are deployed automatically. See Manage Application Updates .
Authenticate your Oracle Applications Cloud source using the JSON web token	JSON web token-based (JWT) authentication avoids the issue of expiring or overwriting the Oracle Applications Cloud user passwords. This authentication eliminates latency in data refresh. See Create an Oracle Fusion Analytics Warehouse Subscription Instance and Update the Data Source Connection Details .
Define inline augmentations	Inline augmentation enables you to define internal data sets, and set filter and joins to perform custom transformations. See Augment Your Data .
Update your source credentials prior to validating data	Prior to validating the data after loading the source data in to your data warehouse, if your source password has expired, then set the new password using the Source Credentials tab. See Prerequisites for Data Validation .
Examine the status of security-related activities	The History tab on the Security page displays a status icon next to each action that shows the status such as "in progress" or "completed successfully". See View Activity History .

Feature	Description
Use the enhanced New Security Assignment functionality	While creating a security assignment, use the enhanced New Security Assignment functionality. See Create a Security Assignment.
Copy data security assignments in bulk	Use the enhanced Copy Assignment functionality to copy data assignments in bulk. See Copy Data Security Assignments.
Use period for calendars	You can use period in the same way as month in application data. See Create a KPI.

Release 21.R3.P2 - November 2021

This major release update includes new or changed application data or content. You can apply this update yourself by accessing the Console and clicking **Release Updates** under Service Administration and locating the **21.R3** update. See Manage Application Updates.

Oracle Fusion ERP Analytics

Feature	Description
Additional subject areas	<p>These subject areas have been added:</p> <ul style="list-style-type: none"> Assets Analysis subject area provides the ability to analyze fixed asset details, asset health, and life cycle tracking over a period of time at the asset book level with associated attribute details and key metrics. Assets Transactions subject area provides the ability to analyze key metrics around assets adjustment transactions and associated accounting details. Project Costs subject area provides the ability to report on actual Cost (Burdened Cost), Raw Cost, and Burden Cost charged to a project along with the GL account for all accounted cost distributions. Requisitions subject area provides the ability to analyze requisitions to detect purchase inefficiencies and improve procurement performance.

Feature	Description
Updated subject areas	<p>These subject areas have been updated as follows:</p> <ul style="list-style-type: none"> • Tax Rate Name and Withholding Tax Calculation Point attributes in AP Expense subject area display the name instead of the ID or code. • In GL Budgets subject area, Budget Scenario and Budget Description attributes are hidden with the introduction of Scenario dimension. • In Purchase Orders subject area, fiscal calendar attributes are based on the ledger associated with the requisition business unit. • In Receipt subject area, fiscal calendar attributes are based on the ledger associated with the requisition business unit. • In Agreements subject area, the fiscal calendar attributes are no longer available.
Enhanced subject areas	<p>These subject areas have been enhanced as follows:</p> <ul style="list-style-type: none"> • AP Liabilities subject area uses aggregate fact table to improve performance when querying summary data. • AR Aging subject area includes Unapplied Receipts. • GL Profitability and GL Balance Sheet subject areas include scenario dimension and ability to perform Budget versus Actuals variance analysis. • GL Account Analysis subject area supports Supplier site dimension. • AP Expense and Employee Expense subject areas have project attributes. • AP Expense subject area has asset attributes • AR Revenue subject area has Tax Line Number attribute.

Feature	Description
Attributes added to existing subject areas	<p>The following subject areas have these additional attributes:</p> <ul style="list-style-type: none"> • GL Account Analysis subject area: Supplier Site Name, Supplier Site Number, Supplier Site Account Group, Supplier Site Payment Terms Name, Supplier Site Payment Group Name, Supplier Site City, Supplier Site State, Supplier Site Country, and Supplier Site Postal Code • GL Balance Sheet, GL Profitability, GL Budgets subject areas: Scenario and Scenario description • AR Aging subject area: AR Receipt Business Unit, Receipt Details folder with Receipt Number, Receipt Date, and Risk Indicator. • AR Revenue subject area: Tax Line Number • EXM Employee Expenses subject area: Project Number, Task Number, and Expenditure Item Date • AP Expenses subject area: Project Number, Project Name, Project Description, Task Number, Task Name, Task Description, Expenditure Type, Expenditure Type Description, Expenditure Organization, Expenditure Item Date, Track as Asset Indicator, Asset Addition Indicator, Asset Book, and Asset Category • Spend subject area: Supplier Category Hierarchy, Master Organization Name, and Item Description • Purchase Order subject area: Ledger, Procurement Business Unit, Requisition Business Unit, Agreement Procurement Business Unit, Item Description, Negotiated Indicator, Discount, Discount Type, and Discount Reason • Agreement subject area: Business Unit, Shipping Method, and Item Description • Receipts subject area: Ledger, Business Unit, Procurement Business Unit, Requisition Business Unit, and Item Description
Metrics added to existing subject areas	<p>These subject areas have additional metrics:</p> <ul style="list-style-type: none"> • AR Aging subject area: Risk Amount • Spend subject area: Invoice Price Variance • Purchase Order subject area: Supplier Count, Rejected Quantity %, Over Receipt Quantity %, Canceled Quantity %, Negotiated Amount, Over Receipt Amount, Open PO Amount, Open PO Count, Closed PO Amount, and Closed PO Count
Upload and maintain mapping of Natural Account segment values	<p>You can upload and maintain the mapping of Natural Account segment values to Financial Category in Oracle Fusion Analytics Warehouse instead of Oracle ERP Cloud.</p>
Enhanced set of KPIs	<p>The set of KPIs includes 5 more Assets Analysis KPIs, 7 more Assets Transactions KPIs, 9 more Requisitions KPIs, and 22 more Projects Costs KPIs.</p>

Feature	Description
Additional visualizations	These visualizations have been added: <ul style="list-style-type: none"> • AP Liabilities Analysis • AP Aging Analysis • Assets Activity Analysis
Updated visualization projects	The visualization projects based on Agreements subject area refer to the Gregorian calendar attributes instead of the fiscal calendar attributes.
Updated KPIs	These KPIs have been updated as follows: <ul style="list-style-type: none"> • KPIs based on Agreements subject area refer to the Gregorian calendar attributes instead of the fiscal calendar attributes. • KPIs based on Purchase Orders and Receipt subject area use requisition business unit to get fiscal calendar attributes.
Updated decks and cards	Decks and cards based on Purchase Orders subject area use requisition business unit to get fiscal calendar attributes.
Certain view objects are no longer supported as data enrichment source	The FscmTopModelAM.FinLeLegalEntitiesAM.LegalEntityPVO view object is no longer supported as a source for data enrichment.
Deprecated warehouse tables	The DW_GL_VARIANCE_CF table has been deprecated.

See Implementing Oracle Fusion ERP Analytics.

Oracle Fusion HCM Analytics

Feature	Description
Additional subject areas	These subject areas have been added: <ul style="list-style-type: none"> • HCM - Succession Management subject area provides insight into an organization's planning and preparation on the workers succession management. A comprehensive view of the plans, incumbents, and candidates with relevant metrics to analyze are available. • HCM - Talent Review Meetings subject area provides the details of the meetings including the calibrated ratings as an outcome of the talent review meeting. The initial ratings prior to the meetings are also available for comparison. Use the Time dimension to report on the history data related to workers talent review, the assessment, and ratings.

Feature	Description
Enhanced subject areas	<ul style="list-style-type: none"> • HCM - Talent Acquisition subject area: Enhanced to include the phase sequence and state sequence numbers in the requisition and application folders. These enhancements allow you to report on the count of requisitions and applications that flow across each phase and states, and also the duration between each. • HCM - Workforce Core subject area: <ul style="list-style-type: none"> – Enhanced with two new fact folders that has the metrics based on person counts rather than the headcount. The folders include the Workforce Person Count and Person Attrition Counts facts. – The Ethnicity folder in this subject area is enhanced to add the Ethnicity - All and Ethnicity Code - All attributes. These attributes enable you to report on all the ethnicities of the worker in addition to the primary ethnicity attribute that is currently available. – A new metric that takes into account all the worker ethnicities is added in Facts - Workforce Diversity > Distinct Worker Ethnicities - All. – Supports Person Legislative descriptive flexfield. • HCM - Workforce Absence Management: Enhanced with the following metrics in Fact - Absence Calendar > In-Progress Absence Fact - Absence Entry > No. Of Absences • HCM - Workforce Rewards - Workforce Compensation: Enhanced with the following metrics: <ul style="list-style-type: none"> – Facts- Compensation plan > Plan - Amount in Transaction Currency > Base Salary Change Value. – Facts- Compensation plan > Plan - Amount in Warehouse Currency > Base Salary Change Value. – Plan - Amount In Warehouse Currency Component - Amount in warehouse currency Budgets- Amount in Warehouse Currency > Exchange Rate Date.
Additional deck	The Talent Acquisition deck is added.
Additional visualization project	The Talent Acquisition Dashboard based on the Talent Acquisition module is available.

See Implementing Oracle Fusion HCM Analytics.

Release 21.R2.P7 - September 2021

General

Feature	Description
Enhance session variable steps	You can configure cache settings using row-wise initialization on customization steps. See Add Session Variables .
Join a fact to multiple dimensions	You can join a single fact column to multiple dimensions. See Add a Dimension .
Specify where a fact is aggregated	You can specify the level of the dimension hierarchy where a fact is aggregated. See Add a Dimension .

Release 21.R2.P5 - August 2021

Oracle Fusion ERP Analytics

Feature	Description
Deprecated warehouse tables	<p>These tables are deprecated and replaced by the tables in the next list:</p> <ul style="list-style-type: none"> • DW_GL_SLA_RECONCILIATION_CF • DW_AR_SLA_APPLICATIONS_F • DW_AR_SLA_SCHEDULES_F • DW_AR_SLA_ADJUSTMENTS_F • DW_AR_SLA_CREDITMEMO_F • DW_AR_SLA_REVENUE_F • DW_AR_SLA_AGING_INVOICE_A • DW_AP_SLA_INVOICE_SCHEDULE_F • DW_AP_SLA_EXPENSE_DIST_F • DW_AP_SLA LIABILITY_DIST_F • DW_AP_SLA_PAYMENTS_F • DW_AP_HOLDS_F • DW_AP_SLA_AGING_INVOICE_A <p>Data for the deprecated tables above is available in these tables:</p> <ul style="list-style-type: none"> • DW_GL_SLA_RECON_CF • DW_AR_SLA_APPLICATIONS_CF • DW_AR_SLA_SCHEDULES_CF • DW_AR_SLA_ADJUSTMENTS_CF • DW_AR_SLA_CREDITMEMO_CF • DW_AR_SLA_REVENUE_CF • DW_AR_SLA_AGING_INVOICE_CA • DW_AP_SLA_INVOICE_SCHEDULE_CF • DW_AP_SLA_EXPENSE_DIST_CF • DW_AP_SLA LIABILITY_DIST_CF • DW_AP_SLA_PAYMENTS_CF • DW_AP_HOLDS_CF • DW_AP_SLA_AGING_INVOICE_CA <p>These tables are fully deprecated and don't have replacements:</p> <ul style="list-style-type: none"> • DW_GL_SUBLEDGER_LINKAGE_G • DW_AR_APPLICATIONS_CF • DW_AR_APPLICATIONS_F • DW_AR_SCHEDULES_CF • DW_AR_SCHEDULES_F • DW_AR_ADJUSTMENTS_CF • DW_AR_ADJUSTMENTS_F • DW_AR_CREDITMEMO_CF • DW_AR_CREDITMEMO_F • DW_AR_REVENUE_CF • DW_AR_REVENUE_F • DW_AR_AGING_CUSTOMER_CA • DW_AR_AGING_INVOICE_CA • DW_AR_AGING_INVOICE_A • DW_AR_BALANCE_CF • DW_AR_BALANCE_F

Feature	Description
	<ul style="list-style-type: none"> DW_AP_INVOICE_SCHEDULES_CF DW_AP_INVOICE_SCHEDULES_F DW_AP_EXPENSE_DISTRIBUTION_CF DW_AP_EXPENSE_DISTRIBUTION_F DW_AP_LIABILITY_DISTRIBUTION_CF DW_AP_LIABILITY_DISTRIBUTION_F DW_AP_PAYMENTS_CF DW_AP_PAYMENTS_F DW_AP_AGING_SUPPLIER_CA DW_AP_AGING_INVOICE_CA DW_AP_AGING_INVOICE_A DW_AP_BALANCE_CF DW_AP_BALANCE_F

See Implementing Oracle Fusion ERP Analytics.

Release 21.R2.P4 - August 2021

Oracle Fusion HCM Analytics

Feature	Description
Enhanced subject areas	HCM-Workforce Core subject area is enhanced to allow the line managers to report on terminated workers within their managerial hierarchy.

See Implementing Oracle Fusion HCM Analytics.

General

Feature	Description
Associate time-based KPIs with specific calendars	Associate time-based KPIs with a specific calendar: Column-driven, Gregorian, or Enterprise for the Calendar Type. See Create a KPI.
Automatically update your instance with the latest Oracle Fusion Analytics Warehouse release	You can schedule all content patches to install automatically. See Schedule the Content Patch Upgrade.
Apply complex joins to tables using an expression	You can include complex joins in a custom dimension table using the Expression Editor. See Add a Dimension.
Copy application roles to groups	You can copy the application roles from an existing group to another or new group. See Copy Application Roles to a Group.

Release 21.R2.P2 - June 2021

Oracle Fusion ERP Analytics

Feature	Description
Additional subject areas	<p>These subject areas have been added:</p> <ul style="list-style-type: none">• EXM Employee Expenses subject area provides the ability to analyze employee spend of an organization across company, cost center, expense types, expense categories, and associated dimensions.• Purchase Orders subject area combines the information from the purchase orders, purchase order costs, and purchase schedules. This subject area has the ability to report on committed amounts, contract spend, and purchase orders of the suppliers of an organization across suppliers, company, products, item categories, and associated hierarchies at purchase order line level.• Purchase Receipts subject area provides the ability to report purchase receipts of an organization across suppliers, company, location, products, item categories, and associated hierarchies at purchase receipt line level.• Purchase Agreements subject area provides the ability to report on purchasing agreement measures like consumed amount, count of agreements, day to expire analyzed by supplier, procurement item, and business units. It also provides the ability to analyze the purchasing blanket agreements and contract agreements details.
Enhanced subject areas	<p>These subject areas have been enhanced:</p> <ul style="list-style-type: none">• GL Account Analysis: Includes all accounting distributions from AR and AP subledgers.• AP Liabilities: Includes Payment liability distributions in addition to invoice liability. This provides the ability to analyze Liability balance amount as of a specific accounting date.• AR Receipts and Applications: Supports Miscellaneous receipts.• AR Credit Memo Application: Ability to perform analysis across subject areas with the AR Transaction subject area that fetches the applied and on-account credit memos.

Feature	Description
Updated subject areas	<p>As part of multi-language support, the following attributes are hidden:</p> <ul style="list-style-type: none"> • Day Code attribute from all date dimensions. • Ledger Type Code, Sub Ledger Accounting Method Code, and Account Type Code attributes from all subject areas. • Supplier Site Payment Group Code, Approval Status Code, Validation Status Code, Invoice Payment Method Code, Payables Source Code, Transaction Type Code, Installment Payment Status Code, Invoice Accounting Status Code, and Account Class Code from all relevant AP Subject areas. • Organization Type Code, Customer Category Code, Customer Account Type Code, Customer Account Class Code, Transaction Class Code, Transaction Source Code, and Schedule Status Code from all relevant AR subject areas. <p>Additionally, the following attributes are hidden from these subject areas:</p> <ul style="list-style-type: none"> • GL Detail Transactions subject area: Posted Status Code, Journal Header Id • GL Account Analysis subject area: Event Class Code, Event Type Code, Transfer to GL Status Code, Journal Header Id • AP Invoices subject area: Journal Header ID • AP Payments subject area: Payment Status Code, Payment Distribution Type Code, Payment Method Code • AP Expenses subject area: Distribution Validation Status Code • AP Holds subject area: Hold Reason Code, Hold Type Code, Release Reason Code, Release Type Code • AR Receipts and Applications subject area: Receipt Status Code, Receipt Type Code, Receipt Application Status Code • AR CM Applications subject area: Credit Memo Application Status Code • AR Adjustments subject area: Adjustment Status Code
Additional visualization projects and KPIs	<p>These visualization projects and KPIs have been added:</p> <ul style="list-style-type: none"> • 3 visualization projects and 6 KPIs for the EXM Employee Expenses subject area. • 1 deck, 1 visualization project and 39 KPIs for the Purchase Orders subject area. • 1 visualization project and 28 KPIs for the Purchase Agreements subject area. • 1 visualization project and 25 KPIs for the Purchase Receipts subject area.

Feature	Description
Attributes added to existing subject areas	<p>The following subject areas have these additional attributes and dimensions:</p> <ul style="list-style-type: none"> • GL Detail Transactions subject area: Journal Header Identifier, Reconciliation Reference • GL Account Analysis subject area: Business Unit, Journal Header Identifier, Reconciliation Reference • AP Liabilities subject area : Payment Document Number, Payment Date, Source Distribution Type • AP Payments subject area : Payment Void Date, Third Party Remit-to Supplier • AP Expenses subject area: Tax Details folder with Tax Classification, Tax Rate Name, Tax Rate, Tax Regime, Tax Name, Tax Jurisdiction, Self Assessed Tax Indicator, Withholding Tax Calculation Point • AR Receipts and Applications subject area: Added Bill-to Customer, Sold-to Customer, Paying Customer, Bill-to Customer Account, Paying Customer Account folders with respective Name and Number attributes, Paying Customer Site folder with Name, City, County, State, Country attributes, Reference Site Name, Receipt Currency, Receivables Activity, Tax Rate Code, Tax Rate, Reference Type, Reference Number, Transaction Type, Transaction Source • AR Transactions subject area: Added Bill-to Customer, Sold-to Customer, Bill-to Customer Account folders with respective Name and Number attributes • AR CM Applications subject area: Added Bill-to Customer, Sold-to Customer, Bill-to Customer Account folders with respective Name and Number attributes, Transaction Type, Applied Transaction type, Transaction Source and Applied Transaction Source name and descriptions • AR Adjustments subject area: Added Bill-to Customer, Sold-to Customer, Bill-to Customer Account folders with respective Name and Number attributes, Transaction Type and Transaction Source dimensions • AR Aging subject area: Added Bill-to Customer, Sold-to Customer, Bill-to Customer Account folders with respective Name and Number attributes • AR Revenue subject area : Added Bill-to Customer, Sold-to Customer, Bill-to Customer Account folders with respective Name and Number attributes, Tax Classification to Tax Line Details folder and Tax Details folder with Tax Rate Name, Tax Rate, Tax Regime, Tax Name, Tax Point Basis, Tax point Date and Place of Supply attributes • All subject areas: Added Trailing Period Number, Trailing Quarter Number, and Trailing Year number to date dimensions

Feature	Description
Metrics added to existing subject areas	<p>The following subject areas have these additional metrics:</p> <ul style="list-style-type: none"> • AP Liabilities subject area: Liability Balance Amount • AR Receipts and Applications subject area: Credit Card Refund Amount, Credit Card Chargeback Amount
Data Validation enhancements	<p>The following enhancements are available:</p> <ul style="list-style-type: none"> • Added Invoice Date pivot attribute to Total Outstanding Amount metric validation of AP Aging. • Added Account Class filter attribute to Payment Distribution Amount metric validation of AP Payments. • Added Receipt Type Name filter attribute and pivot attribute to Receipts Amount metric validation of AR Receipts and Applications. • Changed the filter attribute and pivot attribute Customer Name to Paying Customer Name in Receipts Amount and Receipts Application Amount metrics validation. • Removed Invoice Amount metrics validation of AP Invoices and AR Transactions.
Additional job-specific group	The Expense Manager job-specific group is available.
Updated job-specific groups	<p>These job-specific groups have additional data and duty roles:</p> <ul style="list-style-type: none"> • Accounts Payable Manager • Accounts Payable Specialist • Accounts Payable Supervisor • Buyer • Procurement Manager • Category Manager • Procurement Contract Administrator • Purchase Analysis
Additional application roles	<p>These additional data and duty roles are available:</p> <ul style="list-style-type: none"> • Procurement Inventory Organization Data Security • Procurement Requisition Business Unit Data Security • Employee Expense Analysis Duty • Procurement Purchase Order Analysis Duty • Procurement Purchase Agreement Analysis Duty • Procurement Purchase Receipts Analysis Duty
Updated application role	The Accounts Payable Business Unit Data Security role supports the EXM functional area.

Feature	Description
Deprecated fact tables	<p>These fact tables won't be populated and will be deprecated in future release:</p> <ul style="list-style-type: none"> DW_GL_BALANCE_F DW_GL_JOURNAL_F <p>Data for the soon-to-be deprecated tables is available in these fact tables:</p> <ul style="list-style-type: none"> DW_GL_BALANCE_CF DW_GL_JOURNAL_CF

See Implementing Oracle Fusion ERP Analytics.

Oracle Fusion HCM Analytics

Feature	Description
Additional subject areas	<p>These subject areas have been added:</p> <ul style="list-style-type: none"> HCM - Talent Profile subject area provides insight into the number of seeded talent profile content types (competencies, work requirements, degrees, licenses and certifications, memberships and awards, and so on) of the workers. Additional counts about workers' achievements, experiences, and background can be found in this folder. Job and position data can be extracted from this subject area to assess the workers' performance to specific jobs or positions and whether they are a good skill set match. Key worker information found in the Talent Profile Subject Area helps line managers and HR business partners have insight into organizational skill strength and weakness, analyze skill gaps, and identify potential risk to the business. They can use the skill gap to drive employee development, succession planning, and recruiting needs. HCM - Workforce Absence Management provides information on worker absences aggregate view & by calendar day wise. It also has information on worker absence balances , various balance transactions and ability to plot historical absence balance of a worker. Along with absences , it also provides view point of performance & absence approval/rejection rates of a worker. HCM- Workforce Rewards- Workforce Compensation Provides information on workforce compensation plan , plan components & associated budgets.
Enhanced subject areas	<p>HCM-Workforce Core subject area is enhanced to allow the line managers to report on terminated workers within their managerial hierarchy.</p>

Feature	Description
Updated subject areas	All subject areas have been updated as follows: <ul style="list-style-type: none"> Enterprise calendar-related columns are added under Time Dimension. Fiscal calendar columns are hidden.
Additional dimension	Bargaining Unit dimension added to Common Dimension folder in all subject areas of HCM.
Updated Self Record context	View Self Record context to show only "No" option in the list of values. The Self Record access is "Yes" by default for all the predefined job roles.
Additional job-specific group	Compensation Manager job-specific group is available.
Additional application roles	These additional data and duty roles are available: <p>Duty roles</p> <ul style="list-style-type: none"> Absence Management Analysis Duty Absence Management Diversity Analysis Duty Workforce Compensation Analysis Duty Workforce Compensation Diversity Analysis Duty Profile Management Analysis Duty Profile Management Diversity Analysis Duty <p>Data roles</p> <ul style="list-style-type: none"> Compensation Worksheet Manager Data Security

See Implementing Oracle Fusion HCM Analytics.

Release 21.R2.P1 - May 2021

General

Feature	Description
Republish your customizations	Republish the user extensions, security configurations, and tagged steps of the Main branch if you've modified them after publishing them initially. See Republish Your Customizations.
Tag the Main branch's steps	Tag the "Applied" steps in the Main branch as a snapshot at a given point in time. See Tag the Main Branch's Steps.
Use the enhanced functionality to promote your customizations	You can: <ul style="list-style-type: none"> Promote your customizations from a development to a production instance, from a production to a development instance, and from one production to another production instance. Promote all customized KPIs or selected customized KPIs. Promote all or selected roles and mappings in your customized security configurations. See Promote Your Customizations to the Production Environment.

Feature	Description
View options in the Console based on your permissions	The tiles in the Console are based on the permissions associated with the system groups assigned to the users. See System Groups and System Roles.
Move your users to the author and consumer-related licensed groups	You must move the required users to the author and consumer-related licensed groups by the next release. You can perform this action using the Add User button in the User tab, or Assign Users button in the Groups tab, or through the Mass Upload option in Oracle Identity Cloud Service. For the Mass Upload option, users must have the IDCS_Administrator group assigned to them. Currently, the Users tab on the Security page displays all the users in Oracle Identity Cloud Service which will be discontinued after the next release. After which, from the Users tab, you can access only the users assigned to any of the licensed groups. Decoupling of the Author and Consumer groups, and obsolete system roles from the predefined and custom groups will happen in the upcoming releases after the next release. See System Groups.

Release 21.R1.P5 - May 2021

General

Feature	Description
View customizations in read-only mode in the production instance	You can view the Semantic Model Extensions pages in the read-only mode in your production instance. This enables you to view the composition of customizations, audit history, and security configurations that you had made in your development instance.
Renaming support	You can rename the following without impacting subsequent steps: <ul style="list-style-type: none"> • Subject area name in the Create a Subject Area step. See Create a Subject Area. • Hierarchy name in the Add a Hierarchy and Add a Dimension steps. See Add a Hierarchy and Add a Dimension. • Dimension name in the Add a Dimension step. See Add a Dimension. • Fact name in Add a Fact step. See Add a Fact Table.
Terminate failed instances	You can terminate instances that are in active or failed state. See Terminate Failed Instances.
Update notification email	You can view and update the notification email address set for an instance on the instance details page. See Update the Notification Email.

Release 21.R1.P4 - March 2021

General

Feature	Description
Disable and enable the disabled steps while extending the semantic model	You can disable and enable the disabled steps in the main and customization branches in the development and production environments to troubleshoot issues in the branches. See Disable and Enable the Disabled Steps .
Use functional groups to combine data filters	While configuring data security, Oracle Fusion Analytics Warehouse combines the data filters in the same functional group using the <code>OR</code> operator and combines the sets of data filters in different functional groups using the <code>AND</code> operator. See Configure Data Security .
Use the predefined object security step to configure object permissions	Edit the predefined "Duty Security Step" to secure the objects such as subject areas and their elements with the predefined or custom-created duty roles. See Configure Object Permissions .

Release 21.R1.P3 - March 2021

What's New

General

Feature	Description
Service administrators can view all data	By default, service administrators have access to all data.

Feature	Description
Use the author and consumer-related licensed system groups	<p>You can assign the following additional system groups to users and make use of the privileges of the associated system roles:</p> <ul style="list-style-type: none"> • FAW Licensed ERP Authors • FAW Licensed ERP Consumers • FAW Licensed HCM Authors • FAW Licensed HCM Consumers <p>The author-related licensed system groups are mapped to the Author system role and the consumer-related licensed system groups are mapped to the Consumer system role. See System Groups and System Roles.</p>

 **Note:**

Currently, new licensed users with predefined job-specific groups get the Author role by default. You must add these users to the licensed system groups as the assignment of the Author role by default will no longer be available for the predefined job-specific groups from the next release of Oracle Fusion Analytics Warehouse. You can no longer map the system roles to custom groups as the system roles are no longer available in the user interface. The system roles are only available in the predefined mappings to the system groups. If you have a custom group mapped to those system roles, then the privileges associated with the system roles are

Feature	Description
View Oracle Fusion Analytics Warehouse in 11 non-English languages	<p data-bbox="1214 321 1422 632">still available. In a future release, the privileges associated with the system roles will be available only with the system groups and the system roles will be decoupled from the custom groups.</p> <p data-bbox="850 695 1370 751">Oracle Fusion Analytics Warehouse supports the following non-English languages:</p> <ul data-bbox="850 758 1105 1104" style="list-style-type: none"> • Arabic • Chinese Simplified • Chinese Traditional • Dutch • French Canadian • French European • German • Italian • Japanese • Portuguese Brazilian • Spanish <p data-bbox="850 1115 1458 1276">When you set one of these languages in your browser settings, elements of Oracle Fusion Analytics Warehouse such as the user interface and auto-generated text are displayed in the selected language. Data visualization multi-language support will only be available in a future release.</p> <p data-bbox="850 1293 1458 1602">You can specify the language in which you want the data to be extracted using the Analytics Language pipeline parameter. The languages that you can select in the Analytics Language parameter are based on the initialized Oracle Applications Cloud languages. Changes to this global parameter don't take effect immediately even after next refresh and may cause inconsistent results because the refresh brings in only the incremental data in the selected language. You must reset the warehouse for the language changes to be effective. See Set Up the Pipeline Parameters</p>

Oracle Fusion ERP Analytics

Feature	Description
Procurement Spend subject area	Provides the ability to analyze total spending of an organization based on entities such as suppliers and items. It helps to identify potential cost savings and to assess compliance in the procurement operations. You can use three packaged reports and one dashboard with the Procurement Spend subject area.
Attributes added to existing subject areas	<p>The following subject areas have these additional attributes:</p> <ul style="list-style-type: none"> • GL Detail Transactions subject area: Journal Batch Identifier • AP Invoices subject area: Default Account Combination, Post SLA Indicator, Invoice Identifier, Installment Payment Status • AP Aging subject area: Default Account Combination, Post SLA Indicator, Invoice Identifier • AP Liabilities subject area: Default Account Combination, Invoice Identifier, Distribution Accounting Date • AP Payments subject area : Default Account Combination, Payment Document Identifier, Payment Distribution Type, Account Class, Payment Accounting Date, Payment Distribution Amount • AP Expenses subject area: Default Account Combination, Invoice Identifier, Account Class, Distribution Accounting Date • AP Holds subject area: Invoice Identifier • AR Receipts and Applications subject area: Account Override Indicator, Receipt Distribution Accounting Date • AR CM Applications subject area: Account Override Indicator, Credit Memo Application Accounting Date • AR Adjustments subject area: Account Override Indicator, Adjustment Date, Adjustment Accounting Date • AR Revenue subject area :UOM, Account Override Indicator, Transaction Accounting Date
Metrics added to existing subject areas	<p>The AP Payment subject area has these additional metrics:</p> <ul style="list-style-type: none"> • Payment Distribution Amount • Discount Taken Exchange Loss(Gain) Amount

Feature	Description
Updated subject areas	<p>These subject areas have been updated as follows:</p> <ul style="list-style-type: none"> • Hide "Chart Of Account Name" attribute in the "GL Account" dimension folder in all the existing subject areas. • Renamed "Default Account Type Code" to "Post SLA Indicator" in the AP subject areas. • Hide "Adjustment Date" attribute in the AR Adjustments subject area. • Hide "UOM" attribute in the AR Revenue subject area. • Time anchor changed to Distribution Accounting Date in AP Liabilities subject area. • Account Payables Payment subject area displays all accounting distributions. • Account Payables and Account Receivable subject areas supports Business Unit as a common dimension.
Metrics added for data validation	<p>Five base metrics were added to the automated validations for base metrics between the Oracle Applications Cloud source and Fusion Analytics Warehouse. Additional attributes were added to the existing base metrics.</p>
Enhanced set of KPIs	<p>The set of KPIs include 20 more Spend-related KPIs, 10 more Account Payables KPIs, and 28 more Account Receivable KPIs.</p>

See Implementing Oracle Fusion ERP Analytics.

Oracle Fusion HCM Analytics

Feature	Description
Additional subject areas	<p>These subject areas have been added:</p> <ul style="list-style-type: none"> • HCM - Performance Management provides insight into the employee work performance assessed through performance appraisal. • HCM - Check-Ins provides the details of the key metrics related to employee engagement with their managers through check-ins. • HCM - Goals and Career Development provides insight into performance and development goals that employees create.

Feature	Description
Enhanced subject areas	These subject areas have been enhanced: <ul style="list-style-type: none"><li data-bbox="850 317 1419 401">• Added the "Country", "Ethnicity", and "Disability" dimensions in the HCM - Workforce Core subject area.<li data-bbox="850 409 1430 493">• Added the "Implicit Headcount Gain and Loss" metrics in the HCM - Workforce Gains and Losses subject area.<li data-bbox="850 501 1398 604">• Added the "Country" dimension and additional source-related and job application progression-related metrics in the HCM - Talent Acquisition subject area.

See [Implementing Oracle Fusion HCM Analytics](#).

What's Fixed

For a list of defects fixed in Oracle Fusion ERP Analytics, see [Doc ID 2760973.1](#)

For a list of defects fixed in Oracle Fusion HCM Analytics, see [Doc ID 2761020.1](#)

Release 21.R1.P2 - March 2021

General

Feature	Description
Use the enhanced Security functionality and the Security Extensibility feature	<p>You can:</p> <ul style="list-style-type: none">• Use the enhanced Security functionality to manage users, groups, application roles and data access. Additionally, you can view the security-related activities for audit purposes.• License the users to access Oracle Fusion Analytics Warehouse.• Use the Security Extensibility feature to secure access to objects and data with custom duty and data roles. <p>See Manage Users, Groups, Application Roles, and Data Access and Add Security Configurations.</p>

 **Note:**

You must authenticate the existing users of Oracle Fusion Analytics Warehouse by assigning system groups to them. You must complete this task by one release after the next release of Oracle Fusion Analytics Warehouse. If you've users who were authenticated by assigning them the Job role in Oracle Applications Cloud, then you must add such users to the system groups as soon as possible, otherwise users will lose their access to specific data in a future release.

Feature	Description
Additional system groups - reserved for future functionality	<p>The following additional system groups are available:</p> <ul style="list-style-type: none"> • FAW Licensed ERP Authors • FAW Licensed ERP Consumers • FAW Licensed HCM Authors • FAW Licensed HCM Consumers <p>However, these system groups are applicable for a future functionality. Even though you can assign them to the users currently, you can't make use of the associated privileges as these system groups aren't mapped to the Author and Consumer system roles respectively in this release. See System Groups and System Roles.</p>
View Oracle Fusion Analytics Warehouse in the language that you set in your browser	Oracle Fusion Analytics Warehouse supports several non-English languages, and certain elements such as the user interface and auto-generated text are displayed in those languages.
Change the columns you would like to pivot the detail data on and download the data validation details	While validating the data that you loaded into your data warehouse, you can change the columns that you would like to pivot the detail data on. After validating the data, you can download the detail data showing the differences between the Fusion Analytics Warehouse instance and the Oracle Transactional Business Intelligence instance to a CSV file. See Validate Your Data.
Secure objects and data with custom data and duty roles	Add security configurations to secure the subject areas and data with custom application roles. See Add Security Configurations.
Add multiple canvases to a card	You can link to a project or dashboard with multiple canvases so that they're all available in a KPI card. See Add Multiple Canvases to a Card.

Release 21.R1.P1 - February 2021

General

Feature	Description
Use the system groups mapped to the system roles	<p>System groups are associated with system roles that provide a set of privileges to users. You must add the users to the corresponding system groups based on the tasks users perform in Oracle Fusion Analytics Warehouse.</p> <p>If you had earlier assigned the "OAX Service Administrator", "OAX Functional Administrator", and "OAX Security Administrator" groups to your users, then perform the following steps:</p> <ul style="list-style-type: none"> • Get a list of all the user members of the "OAX Service Administrator" group and add them to the "FAW Service Administrator" group. Remove the users from the "OAX Service Administrator" group and delete the "OAX Service Administrator" group that was manually created previously. • Get a list of all the user members of the "OAX Functional Administrator" group and add them to the "FAW Functional Administrator" group. Remove the users from the "OAX Functional Administrator" group and delete the "OAX Functional Administrator" group that was manually created previously. • Get a list of all the user members of the "OAX Security Administrator" group and add them to the "FAW Security Administrator" group. Remove the users from the "OAX Security Administrator" group and delete the "OAX Security Administrator" group that was manually created previously. <p>You must reassign the users to the applicable system groups including the "FAW Modeler" and "FAW Modeler Administrator" as soon as possible otherwise users will lose their access to Oracle Fusion Analytics Warehouse in a future release. See System Groups and System Roles.</p>

Release 20.R3.P1 - January 2021

General

Feature	Description
Diagrammatically create joins while adding a fact table	Use the Diagram tab to specify the joins to link the fact table to the dimensions in the selected subject area. See Add a Fact Table.
Reload the source table columns while adding fact tables and dimensions, and while extending dimensions	If any of the selected attributes have been removed or modified in the source table since the last refresh, then you can reload the source table columns to view and used the latest. See Add a Fact Table, Add a Dimension, and Extend a Dimension.
Reapply a branch step	Reapply the steps from the Branch details page without opening the steps. See Reapply a Branch Step.

Feature	Description
System Groups - reserved for future functionality	<p>The following system groups specific to Oracle Fusion Analytics Warehouse are predefined in Oracle Identity Cloud Service while provisioning your Oracle Fusion Analytics Warehouse instance:</p> <ul style="list-style-type: none"> • FAW Functional Administrator • FAW Security Administrator • FAW Modeler • FAW Modeler Administrator • FAW Service Administrator <p>These system groups provide users with a set of administration privileges. However, these system groups are applicable for future functionality and you don't need to take any action regarding them currently.</p>

Release 20.R2.P2 - October 2020

Oracle Fusion ERP Analytics

Feature	Description
Additional roles	Support for the Account Payable Invoice Supervisor and Account Payable Payment Supervisor job roles that were recently added in Oracle Applications Cloud.
Updated roles	The AP and AR job roles support the GL Account Analysis subject area.

See Implementing Oracle Fusion ERP Analytics.

Oracle Fusion HCM Analytics

Feature	Description
Enhanced Talent Acquisition subject area	Includes the metrics, dimensions, and KPIs related to job applications and offers.

See Implementing Oracle Fusion HCM Analytics.

Release 20.R2.P1 - September 2020

General

Feature	Description
Provision with single sign-on	Provisioning Oracle Fusion Analytics Warehouse with single sign-on enables you to synchronize users and roles in Oracle Applications Cloud with Oracle Identity Cloud Service and then enable these users to access Oracle Fusion Analytics Warehouse. See Set Up Provisioning with Single Sign-On .
Enable the service administrator to view data	By default, the service administrator doesn't have access to data. To enable the service administrator to view data, you must assign functional roles to the service administrator and add security assignments to the user assigned the service administrator role. For example, to enable a user who's part of the service administrator group to view Accounts Payables (AP) data, assign the Accounts Payable Manager group (or another AP group) to the user. Additionally, assign security assignments in the AP security context of interest. See Create and Associate Users and Job Roles and Add Security Assignments to a User .
Use the additional roles to access the additional subject areas and data	You can use the additional roles to access the additional subject areas and data in Oracle Fusion ERP Analytics and Oracle Fusion HCM Analytics. See "New role" in Oracle Fusion ERP Analytics and "New roles" in Oracle Fusion HCM Analytics .
Use the updated roles to access the subject areas and data	You can use the updated roles to access the subject areas and data in Oracle Fusion ERP Analytics and Oracle Fusion HCM Analytics. See "Updated roles" in Oracle Fusion ERP Analytics and Oracle Fusion HCM Analytics .
Chained upgrades from data model to content	After you upgrade the data model, Oracle automatically applies the instance patch to upgrade the content. See Upgrade the Target Model .
The Data Enrichment process has been renamed as "Data Augmentation" and is available with enhanced functionality	You can augment your reports with datasets created by extending an existing entity or group of facts, by adding an additional dimension in the source table, and by adding an additional fact in the source table. See Augment Your Data .
Use the enhanced Data Validation functionality	You can view the metric values for the Oracle Fusion Analytics Warehouse instance and the Oracle Transactional Business Intelligence instance in the Summary and Details tables. See Validate Your Data .
Add a column	You can add derived columns to an existing subject area. See Add a Column .
Create a subject area	You can create a subject area as a container and later add dimensions and facts to the subject area that you created area or create a subject area based on an existing one. See Create a Subject Area .
Modify a subject area	You can modify a custom subject area. See Modify a Subject Area .
View changes in the customized KPIs	For the KPI's that you customized, you can view the changes. See Edit a KPI .

Oracle Fusion ERP Analytics

Feature	Description
Support STAT currency	The GL Balances, GL Detailed Transactions, and GL Budgets subject areas support STAT currency.
Additional subject area	The GL Account Analysis subject area provides a composite view of the GL account activity and the corresponding subledger transaction details across sources supported in Fusion ERP Analytics. It also helps to reconcile and drill down the GL balances to journals and the contributing subledger transactions.
Select multiple chart of accounts	You can analyze balances, journals for ledgers, and subledger transactions for business units that are tagged to different chart of accounts on consolidated as well as standalone basis. You must select at least one chart of account while setting up the reporting parameters for the data pipeline process.

Feature	Description
Attributes added to existing subject areas	<p>The following subject areas have these additional attributes:</p> <ul style="list-style-type: none"> • GL Detail Transactions subject area: GL Accounting Date, Posted Date, Journal Creation Date, Journal Batch Description, Approval Status, Approved By, Posted Status, Created By – Header, and Created By – Line • AP subject areas: D-U-N-S Number • AP Invoices subject area: Liability Account Combination, Voucher Number, Routing Attribute, Invoice Accounting Status, Invoice Created By, Invoice Updated By, and Installment Hold Indicator • AP Aging subject area: Aging Date and Invoice Accounting Status • AP Liabilities subject area: Liability Account Combination, Account Override Indicator, Distribution Accounting Date, Invoice Created By, and Invoice Updated By • AP Payments subject area : Payment Created By and Account Override Indicator • AP Expenses subject area: Account Override Indicator, Distribution Validation Status, Distribution Reversal Indicator, Purchase Order Schedule Number, and Purchase Order Distribution Number • AP Holds subject area: Approval Status Name, Validation Status Name, Payables Source Name, Transaction Type Name, Accounting Allowed Indicator, and Manual Release Allowed Indicator • AR Transactions subject area: Receivables Account Combination, Transaction Document Number, Salesperson, Schedule Status, Transaction Creation Date, Transaction Update Date, and Transaction Created By • AR Receipts and Applications subject area: Receipt Document Number, Receipt Date, Customer Bank Name, Customer Bank Branch, Customer Bank Account Number, Receipt Distribution Account Combination, Account Class Code, Receipt History Status Code, Receipt Created By, Receipt Application Created By, and Application Type • AR CM Applications subject area: Credit Memo Application Account Combination, and Credit Memo Application Created By • AR Adjustments subject area: Adjustment Account Combination, Account Class Code, and Adjustment Created By Login Name • AR Aging subject area: Aging Date • AR Revenue subject area : Distributions Account Combination, Sold-to Customer, Sold To Customer Number, Salesperson, Sales Order Number (at line level), and Distribution Created By

Feature	Description
Metrics added to existing subject areas	<p>The following subject areas have these additional metrics:</p> <ul style="list-style-type: none"><li data-bbox="850 348 1450 401">• AP Invoices subject area: Total Transaction Amount and Total Transaction Count<li data-bbox="850 411 1450 464">• AP Holds subject area: Invoice Lines on Hold Amount and Invoice Lines on Hold Release Amount<li data-bbox="850 474 1450 579">• AR Receipts and Applications subject area: Receipt Distribution Amount, Receipt Refund Amount, Receipt Write-Off Amount, and Receipt to Receipt Application Amount<li data-bbox="850 590 1450 642">• AR Adjustments subject area: Adjustments Distribution Amount<li data-bbox="850 653 1450 699">• AR Revenue subject area: Quantity Billed and Unbilled Receivable Amount

Feature	Description
Updated subject areas	<p>These subject areas have been updated as follows:</p> <ul style="list-style-type: none"> • GL, AP and AR subject areas: Grouped individual GL Segments dimension into "GL Segments" dimension folder • GL Detail Transactions subject area: <ul style="list-style-type: none"> – Hide "GL Journal Date" attribute and add the additional date "GL Accounting Date" dimension – Hide "GL Posting Date" attribute and add the additional date "Posted Date" dimension – Rename existing attribute "Posted Status" to "Posted Status Code" – Rename existing attribute "Posted Status Name" to "Posted Status" – Rename existing metric "Transaction Amount" to "Net Amount" • AP Payments subject area: <ul style="list-style-type: none"> – Rename existing metric "Payments Count" to "Payments Document Count" – Rename existing metric "Total Payment Count" to "Total Paid Installments Count" • AR Transaction subject area: <ul style="list-style-type: none"> – Hide "Sales Order Number" attribute – Hide "Posted Date" attribute • AR Receipts and Applications subject area: <ul style="list-style-type: none"> – Change the time anchoring from existing "Receipt Application Date" to "Receipt Date" – Hide "Receipt Date" attribute and add the date "Receipt Date" dimension • AR Revenue subject area: Hide "Customer Sold To Name" attribute, add the "Sold-to Customer" dimension, hide "Sales Order Number" attribute, hide "Posted Date" attribute, rename existing attribute "Customer Sold To Name" to "Sold To Customer" attribute • Rename existing KPIs: Rename existing KPI "Days Payables Outstanding" to "Days Payables Outstanding (GL)", rename existing KPI "AP Turnover Rate" to "AP Turnover (GL)" • AR Receipts and Applications subject area: Enhanced to support all accounting distributions for Standard Receipts including Receipt to Receipt applications and activities such as Write Offs, Refunds, and Chargebacks
View tool tip for metrics	Tool tips are available for all metrics with user-friendly descriptions for all the subject areas.
Additional role	The General Ledger Account Analysis Duty role controls presentation catalog access to GL Account Analysis subject area. See Duty Roles.

Feature	Description
Updated roles	<p>These job roles have additional data and duty roles:</p> <ul style="list-style-type: none"> • Financial Analyst • General Accountant • General Accounting Manager <p>See Job Roles</p>

See Implementing Oracle Fusion ERP Analytics.

Oracle Fusion HCM Analytics

Feature	Description
Descriptive Flex Field as dimension or attributes in the existing subject areas	The descriptive flex fields related to various dimensions like person names, assignments, job, department, position, work relationship, hr actions and reasons are enabled in the global hcm subject areas.
Additional subject areas	<p>HCM - Workforce Gains & Losses subject area - analyzes the headcount movement, hires, reorganizations, and terminations.</p> <p>HCM - Talent Acquisition subject area - provides a 360-degree view of the hiring process and recruiting insights.</p>
Enhanced Workforce Core subject area	Additional metrics and dimensions in the existing Workforce Core subject area.
Set up custom data security	Support for custom data security using the ready-to-use security contexts.
Compute the headcount gain or losses based on the reorganization factor	Specify reasons for reorganization to compute the headcount gain or losses based on the reorganization factor.

Feature	Description
Additional roles	<p>These additional roles are available:</p> <ul style="list-style-type: none"> • Duty roles: <ul style="list-style-type: none"> – Workforce Gains and Losses Transaction Analysis Duty – Workforce Core Diversity Analysis Duty – Workforce Gains and Losses Diversity Transaction Analysis Duty – Recruitment Analysis Duty Role <p>See Duty Roles</p> • Data roles: <ul style="list-style-type: none"> – FAW View All Data Role – FAW HCM Legal Employer Data Role – FAW HCM Department Data Role – FAW HCM Business Unit Data Role – Recruitment Job Requisition Data Security – Recruitment Job Requisition View All Data Security <p>Data Roles</p> • Job roles: <ul style="list-style-type: none"> – Human Resource Specialist – Human Resource Manager – Recruiter – Recruiting Manager – Hiring Manager <p>See Job Roles</p>
Updated roles	<p>These job roles have an additional duty role:</p> <ul style="list-style-type: none"> • Human Resource Analyst • Line Manager <p>See Job Roles</p>

See Implementing Oracle Fusion HCM Analytics.

Release 4.0 - July 2020

General

Feature	Description
Experience Oracle Fusion Analytics Warehouse using the product trials	Request for an Oracle Fusion Analytics Warehouse trial and use it to analyze your Oracle Applications Cloud data. See Place and Activate the Order for Oracle Analytics for Applications and Create an Oracle Analytics for Applications Trial Instance.

Feature	Description
Enable Oracle to manage your resources without your active intervention	Add an Oracle Cloud Infrastructure Identity and Access Management policy to enable Oracle to manage your resources without your active intervention. See Add an Oracle Cloud Infrastructure Identity and Access Management Policy.
Add a dimension	Add a custom dimension table to an existing subject area and joins to a fact table. See Add a Dimension.
Add a hierarchy	Add a hierarchy to a dimension table in an existing subject area. See Add a Hierarchy.
Add session variables	Add a custom session variable that you can include in an analysis. See Add Session Variables.

Release 3.1 - May 2020

General

Feature	Description
Validate your data	Validate the data after loading the source data in to your data warehouse. See Validate Your Data.
Enrich your data	You can supplement your reports by using datasets that you create with specific columns from various view objects (VOs) from the Oracle Applications Cloud data sources. See Enrich Your Data.
Add a fact table	Add a fact table to an existing subject area. See Add a Fact Table.
Reorganize subject areas	Reorganize the ready-to-use subject areas to create a subject area. See Reorganize Subject Areas.
Create email notifications for KPIs	Enable email notifications for KPIs so that you know when the status changes. See Orientation Configure and Use Notifications.
Customize KPIs	Customize Oracle-provided KPIs or create a copy of a KPI to customize.

Oracle Analytics for Enterprise Resource Planning

Feature	Description
Reporting Currency Ledgers	Oracle Analytics for Enterprise Resource Planning supports Reporting Currency with Balance type in GL Balance Sheet and GL Profitability subject areas.
Document Currency	Oracle Analytics for Enterprise Resource Planning supports all metrics in document currency in the General Ledger, Accounts Payables, and Accounts Receivables subject areas.

Feature	Description
Additional subject area	The AR Revenue subject area enables you to analyze revenue. This subject area provides details for the key metrics related to revenue sourced from AR transaction distribution and revenue recognition. You can analyze these metrics by Transaction Details, Business Units, Customer Accounts, and CoA Segments.
Enhanced subject areas	<p>These subject areas have been enhanced:</p> <ul style="list-style-type: none"> • AP Balances subject area is merged with AP Aging subject area to work based on Invoice Remaining Amount logic in AP Installments. This subject area supports historical reporting of payables invoice aging. Historic aging snapshots for 24 months prior to the current date are available. • AR Balances subject area is merged with AR Aging subject area to work based on Invoice Remaining Amount logic in AR Schedules. This subject area supports historical reporting of receivables invoice aging. Historic aging snapshots for 24 months prior to the current date are available. • The Accounts Payables and Accounts Receivables subject areas show accounts of post subledger accounting generated based on the subledger accounting rules instead of the default accounts generated in the respective subledgers, including support for manual account override.
Attributes added to existing subject areas	<p>These subject areas have additional attributes:</p> <ul style="list-style-type: none"> • Attributes added to the General Ledger subject area are Journal Reversal Status and Journal Created By for Headers and Lines. • Attributes added to the Accounts Payables subject areas are Invoice Group, Discount Due Date, Supplier Type, Installment Number, Invoice Updated By, Invoice Creation Date, Invoice Accounting Date, Expense Distribution Accounting Date, Payment Accounting Date, and Hold Indicator. • Attributes added to the Accounts Receivables subject areas are AR Transaction Accounting Date, Receipt Accounting Date, Receipt Application Accounting Date, Credit Memo Application Accounting Date, and Adjustment Accounting Date.
Metrics added to the Accounts Payables subject areas	<p>These metrics have been added to the Accounts Payables subject areas:</p> <ul style="list-style-type: none"> • AP Payments Exchange Loss (Gain) Amount • Header Holds count • Line Holds count
Descriptive Flex Field as Dimension/ Attributes in existing subject areas	You can enable the Descriptive Flex Field (DFF) in the General Ledger, Accounts Payables, and Accounts Receivables subject areas such as Journal Batch, AP Invoice Headers and Lines, AR Transactions and Lines, AR Receipts, Supplier, and Customer.

See Implementing Oracle Analytics for Enterprise Resource Planning.

Oracle Analytics for Human Capital Management

Feature	Description
Potential Band dimension	The Potential Band dimension provides a grouping of potential ratings under various headers. For example, High, Medium, and Low. You can configure the rating ranges under these bands.
KPIs added for Human Capital Management	<p>These KPIs have been added for Human Capital Management:</p> <ul style="list-style-type: none">• Top Talent Ratio KPI provides the ratio of workers with high performance and potential values against the total workforce.• Low Talent Ratio KPI provides the ratio of workers with low performance and potential values against the total workforce.• Termination by High Performer KPI provides the count of terminations that are rated high in performance.• Terminations by Top Talent KPI provides the count of terminations that are rated high in performance and potential.• Retention by Talent KPI provides the retention percentage by each talent 9-box based on performance and potential.• Turnover by High Performer KPI provides the ratio of high performer terminations against the total headcount.• Turnover by Top Talent KPI provides the ratio of high performer and potential terminations against the total headcount.
Talent Retention % card in the Workforce Management deck	This card provides the percentage of talent retained by each of the boxes in the performance versus the potential 9-box.
Top Talent Retention detailed page	The detailed page provides an analysis of the performance and potential ratings of the workers. It provides the details of the workers that have been identified as top talent in the organization and are retained. A 9-box analysis of the employee retention by their talent ratings is available through this page.

See [Implementing Oracle Analytics for Human Capital Management](#).

Release 3.0 - March 2020

Feature	Description
Support for Oracle Analytics Cloud available on Oracle Cloud Infrastructure Gen 2.	When you subscribe to Oracle Fusion Analytics Warehouse, you get Oracle Analytics Cloud on Oracle Cloud Infrastructure Gen 2 in North America (Ashburn) and EMEA (London) along with it. The Oracle Analytics Cloud instance created inline is based on an included capacity model similar to Oracle Autonomous Data Warehouse. In this model, you won't be billed for the included capacity. If you choose to scale your Oracle Analytics Cloud instance, then you would be charged the difference between the scaled value and the included capacity. See About Oracle Analytics for Applications.
Oracle Analytics for Human Capital Management	Oracle Analytics for Human Capital Management allows you to make data-driven decisions and to test the effectiveness of Human Resources policies. You can analyze data to gain insights that you can act on and to gather information to meet specific requirements. For example, you can answer questions such as "What is the voluntary turnover rate" and "What is the expected turnover rate for this quarter based on previous quarters?". See About Reporting Configuration for Human Capital Management.

Recent Product Updates

Here's an overview of the regions where Oracle Fusion Analytics Warehouse is available.

October 2021

Update	Description
Available in Phoenix	Oracle Fusion Analytics Warehouse rolls out to the Phoenix region. See Region Availability.

July 2021

Update	Description
Available in Jeddah	Oracle Fusion Analytics Warehouse rolls out to the Jeddah region. See Region Availability.

June 2021

Update	Description
Available in Toronto	Oracle Fusion Analytics Warehouse rolls out to the Toronto region. See Region Availability.

May 2021

Update	Description
Available in Sao Paulo	Oracle Fusion Analytics Warehouse rolls out to the Sao Paulo region. See Region Availability.

April 2021

Update	Description
Available in Dubai	Oracle Fusion Analytics Warehouse rolls out to the Dubai region. See Region Availability.

February 2021

Update	Description
Available in Sydney	Oracle Fusion Analytics Warehouse rolls out to the Sydney region. See Region Availability.

November 2020

Update	Description
Available in Frankfurt	Oracle Fusion Analytics Warehouse rolls out to the Frankfurt region. See Region Availability.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

Oracle Cloud What's New in Oracle Fusion Analytics Warehouse

F51870-06

Copyright © 2020, 2022, Oracle and/or its affiliates. All rights reserved.

This document describes new features for Oracle Fusion Analytics Warehouse.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs (including any operating system, integrated software, any programs embedded, installed or activated on delivered hardware, and modifications of such programs) and Oracle computer documentation or other Oracle data delivered to or accessed by U.S. Government end users are "commercial computer software" or "commercial computer software documentation" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, reproduction, duplication, release, display, disclosure, modification, preparation of derivative works, and/or adaptation of i) Oracle programs (including any operating system, integrated software, any programs embedded, installed or activated on delivered hardware, and modifications of such programs), ii) Oracle computer documentation and/or iii) other Oracle data, is subject to the rights and limitations specified in the license contained in the applicable contract. The terms governing the U.S. Government's use of Oracle cloud services are defined by the applicable contract for such services. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle, Java, and MySQL are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Inside are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Epyc, and the AMD logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.