

Oracle® Essbase

Using Essbase on Autonomous AI Lakehouse



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Primary Author: Essbase Information Development Team

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Contents

1 Overview

About Essbase on Autonomous AI Lakehouse	1
What Is Oracle Essbase?	1
Key Features of Essbase on Autonomous AI Lakehouse	2
From Relational Data to a Business Model	2
Essbase Data and Metadata	2
Use Case Examples	4
What's New	4
October 2026	4

2 Quick Start

Before You Begin	1
Launch Essbase	1
Configure Catalog Object Storage	2
Build a Sample Essbase Application	4

3 Tasks

Model Relational Data as a Cube	1
Shape Business Views with Dimensions and Hierarchies	2
Plan an Application and Cube	4
Consider the size and number of your dimensions	5
Consider how users will work with the data	5
Consider where users need to enter data	5
Consider how much aggregation the application requires	6
Make an initial choice	6
Apply Business Logic with Calculations	7
Start with aggregation	7
Add calculations with Essbase member formulas	8
Consider whether you need allocations	8
Consider forecasting requirements	9
Decide whether you need a calculation process	9
Finalize the cube type	10

Prepare Data for Analysis	11
Start with your Lakehouse data	11
Align the data with the cube model	11
Connect to other sources when needed	12
Manage Access to Applications and Data	12
Assign access according to responsibility	12
Restrict access to business data	13
Limit access from connected clients	13
Apply least privilege	13
Validate and Operate Cubes	13
Validate the model with representative queries	14
Run and validate calculations	15
Review jobs and results	15
Troubleshoot from result to cause	16

4 Features

Build Cubes with Application Workbooks	1
Calculate and Aggregate Data	2
Work with calculations in ASO cubes	2
Work with calculations in Hybrid BSO cubes	3
Analyze Data with Smart View	4
Use AI with Essbase	4
Connect AI assistants with MCP Server	5
Ask questions about Essbase	5
Use MDX for Advanced Analysis	5

5 Reference

Calc Commands	1
Calc Functions	1
Application Workbooks	1

6 Limitations

Restrictions	1
Known Issues	2
Notes for existing Essbase users	2
Oracle manages Essbase	3
Application and cube structure	3
Understand the Lakehouse integration	3
Access and connected clients	4

Building from Excel	4
Calculation and feature differences	4
Bringing in existing applications and processes	5
How to use this guide	5

1

Overview

Start here to learn about Essbase on Autonomous AI Lakehouse.

This guide is for administrators and technical users who work with relational data in Autonomous AI Lakehouse and want to use Essbase to create business-oriented multidimensional models for analysis.

- [About Essbase on Autonomous AI Lakehouse](#)
Essbase on Autonomous AI Lakehouse is an Oracle-managed cloud service that helps you analyze your warehoused data in terms of business logic.
- [What's New](#)
Here's an overview of new features, enhancements, issues, and other version information for Essbase on Autonomous AI Lakehouse.

About Essbase on Autonomous AI Lakehouse

Essbase on Autonomous AI Lakehouse is an Oracle-managed cloud service that helps you analyze your warehoused data in terms of business logic.

If you are already familiar with Essbase, see [Notes for existing Essbase users](#) for the differences that apply to Essbase on Autonomous AI Lakehouse.

- [What Is Oracle Essbase?](#)
Oracle Essbase is a business analytics solution that uses a proven, flexible, best-in-class architecture for analysis, reporting, and collaboration. Essbase delivers instant value and greater productivity for your business users, analysts, modelers, and decision-makers, across all lines of business within your organization.
- [Key Features of Essbase on Autonomous AI Lakehouse](#)
Essbase on Autonomous AI Lakehouse provides multidimensional modeling, calculations, and analysis for business data.
- [From Relational Data to a Business Model](#)
If you work with relational data, you may think in terms of fact tables, dimension tables, joins, and SQL. Essbase on Autonomous AI Lakehouse adds a multidimensional business model for analyzing that data.
- [Essbase Data and Metadata](#)
Essbase on Autonomous AI Lakehouse organizes business data in a model that reflects how your organization analyzes it.
- [Use Case Examples](#)
Here are some use case examples for Essbase on Autonomous AI Lakehouse.

What Is Oracle Essbase?

Oracle Essbase is a business analytics solution that uses a proven, flexible, best-in-class architecture for analysis, reporting, and collaboration. Essbase delivers instant value and greater productivity for your business users, analysts, modelers, and decision-makers, across all lines of business within your organization.

Key Features of Essbase on Autonomous AI Lakehouse

Essbase on Autonomous AI Lakehouse provides multidimensional modeling, calculations, and analysis for business data.

Use Essbase to organize business data into cubes, define business logic in outlines and calculations, and analyze results in the Essbase web interface or Smart View.

You can:

- Design, create, and update cubes by using Excel-based application workbooks.
- Query, pivot, and analyze cube data in Smart View.
- Create calculations that support planning, forecasting, and allocations.
- Use REST APIs to integrate Essbase web interface capabilities into other applications.

From Relational Data to a Business Model

If you work with relational data, you may think in terms of fact tables, dimension tables, joins, and SQL. Essbase on Autonomous AI Lakehouse adds a multidimensional business model for analyzing that data.

In this model, dimensions represent the business perspectives by which users analyze data, such as Product, Market, and Time. Hierarchies organize members from summary to detail, and measures or accounts represent the values being analyzed. Calculations express reusable business rules.

Instead of repeatedly rebuilding joins, filters, and aggregation logic for each analysis, you can define the business model once and let users explore it through the Essbase web interface or Smart View.

Relational or Lakehouse concept	Essbase business model	Analysis benefit
Fact table	Cube data	A consistent analytical view
Product, market, or date columns	Dimensions	Pivot and filter by business perspective
Dimension-table relationships	Hierarchies and members	Drill from summary to detail
Revenue, cost, or units columns	Measures or accounts	Analyze business values
Repeated SQL formulas	Calculations	Apply governed business logic
SQL queries and joins	Pivot, slice, drill, and retrieve	Explore related business questions

Essbase Data and Metadata

Essbase on Autonomous AI Lakehouse organizes business data in a model that reflects how your organization analyzes it.

A data value tells you how much. Metadata tells you what the value means.

For example, a beverage company records unit sales of **1,000,000** for cola. The number becomes useful when you know its business context: the market, time period, product, and measure.

Data value meaning	+ Business context	= Business
1,000,000 Cola	Market: United States	Unit Sales of
States	Year: FY26	in the United
	Product: Cola	during FY26
	Measure: Unit Sales	

In Essbase, an application contains a cube. A cube is an Essbase database that organizes data in three or more dimensions.

An **outline** defines the cube structure: its dimensions, members, and their relationships. A dimension is a category of business data. Its members are the values within that category.

In this example, Market, Year, Product, and Measure are dimensions. United States, FY26, Cola, and Unit Sales are members.

```

Cube outline
|
+-- Market
|   |-- United States
|
+-- Year
|   |-- FY26
|
+-- Product
|   |-- Cola
|
+-- Measure
|   |-- Unit Sales

```

Essbase stores the value at the intersection of those members:

(United States, FY26, Cola, Unit Sales) = **1,000,000**

When you use the cube, change the members to ask another business question. For example, select a different product, year, or market to compare unit sales.

You can slice and dice the data by selecting members in different dimensions, pivoting between business perspectives, and drilling from summary members to detail. This flexibility supports interactive, multidimensional (i.e. *speed-of-thought*) analysis: you can follow the next business question without changing the underlying business model or redefining the business logic.

Use Case Examples

Here are some use case examples for Essbase on Autonomous AI Lakehouse.

Analyze business data in Excel

Use Smart View in Microsoft Excel to retrieve, pivot, and analyze Essbase data.

Plan and allocate

Create top-down and bottom-up forecasts. Allocate values across departments, products, markets, or time periods.

Create and manage cubes from Excel

Use Excel-based application workbooks to design, create, and update cubes.

What's New

Here's an overview of new features, enhancements, issues, and other version information for Essbase on Autonomous AI Lakehouse.

- [October 2026](#)
Essbase on Autonomous AI Lakehouse is a new offering of Oracle Essbase that runs as cloud platform within Data Studio on Autonomous AI Database Serverless.

October 2026

Essbase on Autonomous AI Lakehouse is a new offering of Oracle Essbase that runs as cloud platform within Data Studio on Autonomous AI Database Serverless.

2

Quick Start

Here are suggestions to get you up and running on Essbase on Autonomous AI Lakehouse.

- [Before You Begin](#)
Before you begin, make sure that your organization has an Oracle Cloud account and access to the Autonomous AI Database instance where Essbase is available. You also need the permissions required to use Essbase.
- [Launch Essbase](#)
You enable and launch Essbase from the Autonomous AI Database instance in OCI.
- [Configure Catalog Object Storage](#)
Configure an Oracle Cloud Infrastructure (OCI) Object Storage bucket for the Essbase file catalog. Essbase on Autonomous AI Lakehouse uses the file catalog internally for many features. Perform this one-time configuration before users begin using Essbase.
- [Build a Sample Essbase Application](#)
Build the Sample Basic application to explore an Essbase cube before you create your own application.

Before You Begin

Before you begin, make sure that your organization has an Oracle Cloud account and access to the Autonomous AI Database instance where Essbase is available. You also need the permissions required to use Essbase.

For help getting started with Oracle Cloud Infrastructure, see [Get Started with Oracle Cloud Infrastructure Services](#).

Launch Essbase

You enable and launch Essbase from the Autonomous AI Database instance in OCI.

Follow the Autonomous AI Database documentation for the instructions:

[What if analysis, Planning, and Business Analytics with Oracle Essbase](#)

That procedure explains how to enable Essbase, apply the required configuration, and open the Essbase URL. After Essbase on Autonomous AI Lakehouse opens, sign in using your Autonomous AI Database credentials. Your administrator must also grant you an Essbase role appropriate to your work.

After you launch Essbase, continue with [Build a Sample Essbase Application](#).

Configure Catalog Object Storage

Configure an Oracle Cloud Infrastructure (OCI) Object Storage bucket for the Essbase file catalog. Essbase on Autonomous AI Lakehouse uses the file catalog internally for many features. Perform this one-time configuration before users begin using Essbase.

Before you Begin

Coordinate with an OCI administrator or Object Storage administrator in the OCI tenancy where your Autonomous AI Database instance is provisioned. Refer to: [Overview of Object Storage](#).

Make sure that the following tasks are complete:

1. An OCI user has created an Object Storage bucket for the Essbase file catalog.
2. The OCI user has recorded the bucket name, Object Storage namespace, and OCI region.
3. An OCI user who has access to the bucket has an API signing key.
4. You have obtained the following information for that API-key user:
 - User OCID
 - API key fingerprint
 - Tenancy OCID
 - Private API signing key
 - Private key passphrase, if applicable
5. You have permission to access the **Console** in the Essbase web interface.

The user who created the bucket and the user whose API key you provide can be different users. However, the API-key user must have access to the bucket.

The private key must be in PEM format. Treat the private key as sensitive information and transfer it using an approved secure method. Do not share it with regular Essbase users.

For information about obtaining OCI API-key details, see [Required Keys and OCIDs](#). For information about Object Storage namespaces, see [Object Storage Namespaces](#).

Configure Catalog Object Storage

1. Sign in to the Essbase web interface.
2. In the navigation panel, click **Console**.
3. Click **Catalog Object Storage**.
4. If the fields are not editable, click **Edit**.
5. Enter the OCI information in the fields:

Field	Enter
User ID	The OCID of the OCI user associated with the API signing key and private key. Do not enter the user name or email address.
Fingerprint	The fingerprint of the public API key associated with the private key. The fingerprint, User ID, and private key must belong to the same OCI user and API key.

Field	Enter
Tenancy	The OCID of the OCI tenancy where your Autonomous AI Database instance is provisioned.
Region	The OCI region identifier for the Object Storage bucket, such as us-phoenix-1.
Key file	Select or drag the private API signing key file.
Key file content	If you do not select a key file, paste the complete contents of the PEM private key, including the BEGIN and END lines.
Namespace	The Object Storage namespace associated with the bucket.
Bucketname	The exact name of the Object Storage bucket. Do not enter a bucket URL or OCID.
Private key passphrase	The passphrase for the private key, if the key is encrypted. Leave this field blank if the key does not have a passphrase.

- Use either **Key file** or **Key file content** to provide the private key.
- Click **Test**.
- If the test succeeds, click **Save**.

After the configuration is saved, Essbase can use the Object Storage bucket for the Essbase file catalog. To verify the configuration, click **Files** and open the catalog.

Troubleshoot the Configuration

- If the **Catalog Object Storage** option is not available, verify that you are using Essbase on Autonomous AI Lakehouse and that you have permission to access the Console.
- If authentication or signature validation fails, verify that **User ID**, **Fingerprint**, and the private key belong to the same OCI user and API key.
- If OCI returns an authorization error, ask the OCI administrator or Object Storage administrator to verify that the API-key user has access to the Object Storage bucket.
- If the bucket cannot be found, verify the **Region**, **Namespace**, and **Bucketname** values. Enter the region identifier, not the region's display name.
- If the private key cannot be read, verify that it is a PEM-format private key and that the passphrase is correct.

Build a Sample Essbase Application

Build the Sample Basic application to explore an Essbase cube before you create your own application.

The `Sample_Basic.xlsx` application workbook is in the `gallery` folder of the Essbase file catalog.

1. On the **Applications** page, click **Import**.
2. In the **Import** dialog box, click **Catalog**.
3. Navigate to **gallery > Applications > Demo Samples > Block Storage**.
4. Select `Sample_Basic.xlsx`, and then click **Select**.
5. Click **OK**.

Essbase creates the **Sample** application and the **Basic** cube. You can now open the **Basic** cube and explore its outline and data.

Sample Basic is a simple example cube for exploring Essbase concepts and features.

Next, connect to the cube using Smart View, to explore how ad hoc analysis works. See [Analyze an Application in Smart View](#).

3

Tasks

To use Essbase on Autonomous AI Lakehouse, these are the tasks you'll need to accomplish.

- [Model Relational Data as a Cube](#)
With Essbase on Autonomous AI Lakehouse, you can organize relational data as a multidimensional cube that reflects how your business analyzes information.
- [Shape Business Views with Dimensions and Hierarchies](#)
Dimensions and hierarchies in Essbase let you organize business data in ways that reflect how different users need to analyze it.
- [Plan an Application and Cube](#)
Decide what kind of an Essbase application is best suited for your business data in the Lakehouse.
- [Apply Business Logic with Calculations](#)
After planning your application and cube, consider how Essbase needs to derive, aggregate, and transform the business data in your model.
- [Prepare Data for Analysis](#)
Prepare the business data that will populate the dimensions, members, and measures in your Essbase cube.
- [Manage Access to Applications and Data](#)
Control who can use Essbase applications, what operations they can perform, and what business data they can access.
- [Validate and Operate Cubes](#)
Validate your Essbase cube with representative business queries and calculations, and monitor the operations that keep the application working as expected.

Model Relational Data as a Cube

With Essbase on Autonomous AI Lakehouse, you can organize relational data as a multidimensional cube that reflects how your business analyzes information.

At this modeling stage, you can think of the process as **cubing your relational data**: in other words, organizing relational business data into dimensions, hierarchies, measures, and calculation relationships that reflect how your users need to analyze the business.

Suppose your relational data contains sales records with columns for product, market, date, revenue, cost, and units. In SQL, you can query and aggregate these values directly. In Essbase, you model the same business domain using dimensions, members, hierarchies, measures, and calculation relationships.

For example:

Relational data	Essbase model
Product identifiers and classifications	Product dimension
Country, region, and market values	Market dimension

Dates and reporting periods	Time dimension
Revenue, cost, and units	Measures
Business rollups	Member hierarchies
Derived business values	Calculation logic

The resulting cube gives analysts a consistent, business-oriented structure for analyzing the data.

A dimension represents a major perspective on the business, such as Product, Market, or Time. Members represent the individual values within each dimension. Hierarchies organize those members into parent-child relationships, such as:

Total Market → Americas → United States → California

Measures represent the numeric values to analyze, such as Revenue, Cost, or Units.

Essbase can also add calculation logic that gives those values additional business meaning. For example, a model can define Gross Margin from revenue and cost, or define how lower-level members contribute to higher-level totals.

Together, these elements form the Essbase **outline**: the multidimensional structure through which users of your cube analyze the relational business data.

When designing the cube, focus on how end users need to view and analyze the business data, rather than attempting to reproduce the physical relational schema.

After you establish the outline model, you can further shape its dimensions and hierarchies, add business logic with calculations, build the cube using an application workbook, and analyze it using Essbase query and analysis tools.

Shape Business Views with Dimensions and Hierarchies

Dimensions and hierarchies in Essbase let you organize business data in ways that reflect how different users need to analyze it.

For example, sales data can be viewed by:

- Product
- Market
- Time
- Scenario
- Customer
- Channel
- Organization

Each of these business perspectives can become a dimension in the Essbase outline.

Within a dimension, you arrange members into hierarchies that show their business relationships. For example:

Total Market → Americas → United States → California

or:

Total Products → Electronics → Computers → Laptops

These hierarchies let your users begin with a summarized business view and drill down to increasingly detailed levels. The same data can also be pivoted *across* dimensions, such as viewing Product by Market, Market by Time, or Actual versus Budget by Product and Quarter.

Design dimensions around business perspectives

Choose dimensions based on how users naturally ask questions about the business.

For example:

Business question	Dimension
Which products are selling?	Product
Where are they selling?	Market
When did sales occur?	Time
Are results actual, budgeted, or forecast?	Scenario
Who bought products?	Customer
Through which sales channel?	Channel

A well-designed dimension gives users a consistent vocabulary for analyzing data. Instead of defining the same grouping logic separately in different queries or reports, you establish the business structure once in the Essbase outline.

Use hierarchies to move between summary and detail

Hierarchies define parent-child relationships between members.

For example, a Market hierarchy could contain:

Total Market → North America → United States → California

At a high level, users can analyze Total Market. When more detail is needed, they can drill down through the hierarchy to North America, the United States, and California.

Hierarchies can also reflect reporting structures that are specific to your organization. A Product hierarchy might group products by family and category, while an Organization hierarchy might group departments by division and business unit.

By defining these relationships in the outline, you provide reusable drill-down paths and aggregation structures that are useful for analysis.

Provide alternate business views

Sometimes, the same members need to be organized in more than one way.

For example, products could be analyzed by product category for merchandising purposes and by brand for marketing purposes. **Alternate hierarchies** let the same underlying members be viewed through different organizational structures.

This gives users different perspectives on the same business data without requiring a separate copy of the data for each view.

Add attributes for additional ways to analyze members

Attributes let you describe characteristics of dimension members and analyze data by those characteristics.

For example, members of a Product dimension might have attributes such as color, size, package type, or brand. You can then analyze product data according to those characteristics without creating another standard business dimension for each one.

Customers might also have attributes, such as age range or customer segment.

Attributes enable users of the Essbase cube to analyze data according to such characteristics. For example, you can do a comparison of sales of red cars versus blue cars, or analyze purchasing patterns by consumer age range.

In Essbase, an attribute is always associated with members of a **base dimension**. For example, the Product dimension could be the base dimension for Color or Size attributes.

For a deeper dive on designing and using attributes, see [Work with Essbase Attributes](#).

Recap

- **Dimensions** are core elements of an Essbase outline. They define the primary business perspectives for analysis.
- **Hierarchies** organize members within those dimensions, and provide the structure for navigation from summary to detail.
- **Attributes** are optional, and add an extra layer of analysis based on member characteristics.

Plan an Application and Cube

Decide what kind of an Essbase application is best suited for your business data in the Lakehouse.

In the previous tasks, you identified the dimensions and hierarchies that describe how users need to view the business. Now use that model to begin planning the Essbase application and cube that will contain it.

One of your first decisions is whether to create a hybrid block storage (BSO) cube or an aggregate storage (ASO) cube.

Start by looking at the shape of the model you have planned.

- [Consider the size and number of your dimensions](#)
Dimension volume is part of the "ASO or BSO" decision process when planning an Essbase cube.

- [Consider how users will work with the data](#)
As part of your decision to develop either an ASO or BSO Essbase cube, ask yourself questions about the expected user workload.
- [Consider where users need to enter data](#)
ASO and BSO cube types both support data updates, but they differ in where data can be written.
- [Consider how much aggregation the application requires](#)
Some Essbase applications contain large volumes of detailed data that users frequently summarize across dimensions such as Product, Market, Time, Customer, and others.
- [Make an initial choice](#)
At this stage, you do not need to understand every difference between BSO and ASO Essbase applications. Use the business model you have already designed to make an initial choice.

Consider the size and number of your dimensions

Dimension volume is part of the "ASO or BSO" decision process when planning an Essbase cube.

If your model contains many dimensions, or some dimensions contain very large numbers of members, ASO can be a good fit. Aggregate storage is designed for large, sparsely populated multidimensional models and large-scale aggregation.

BSO can also support large dimensional models, and the BSO option available in Essbase on Autonomous AI Lakehouse combines block storage capabilities with aggregate-storage-style query performance. Therefore, dimension count alone should not determine your choice.

Instead, consider dimension size together with the other requirements of your application.

Note

Additional considerations will be explored in [Apply Business Logic with Calculations](#).

Consider how users will work with the data

As part of your decision to develop either an ASO or BSO Essbase cube, ask yourself questions about the expected user workload.

Ask whether users will primarily:

- Explore existing data from different dimensional perspectives.
- Roll up large volumes of detailed data into summarized business views.
- Run reporting and analytical queries across large hierarchies.

If those activities describe most of the workload, ASO is often a natural choice.

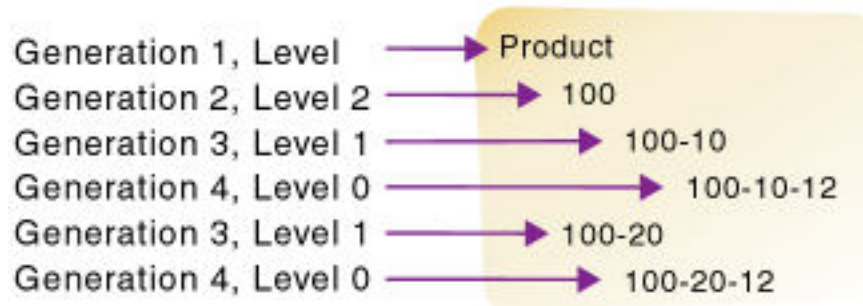
If users will also need to enter, update, or work interactively with business values as part of applications such as planning, budgeting, or forecasting, BSO may be a better starting point.

Consider where users need to enter data

ASO and BSO cube types both support data updates, but they differ in where data can be written.

In an ASO cube, writeback is limited to **level-0 members**—the lowest-level members in a hierarchy. BSO provides more flexibility for applications in which users work with entered values at different levels of the model.

For example, in the hierarchy illustrated below, the level 0 members are at the bottoms of the branches of the Product dimension.



If your Essbase application has data that is refreshed or loaded at the lowest level, then the distinction may not matter. Regardless, if user input is an important part of the application, consider it carefully when choosing the cube type.

Consider how much aggregation the application requires

Some Essbase applications contain large volumes of detailed data that users frequently summarize across dimensions such as Product, Market, Time, Customer, and others.

ASO is optimized for this type of aggregation-intensive analysis.

BSO is appropriate when the application needs a broader combination of aggregation, data entry, and business processing. You will learn more about those capabilities as you continue planning the application in terms of calculation and aggregation requirements.

You'll learn about these considerations in [Apply Business Logic with Calculations](#).

Make an initial choice

At this stage, you do not need to understand every difference between BSO and ASO Essbase applications. Use the business model you have already designed to make an initial choice.

If your application tends toward...	Consider
Many or very large dimensions and aggregation-intensive analysis	ASO
Primarily reporting and exploration of detailed data	ASO
Data entry, budgeting, planning, or forecasting	BSO
A mixture of analysis, user input, and business processing	BSO

Requirements that do not clearly favor either approach

Continue planning before making a choice

As you learn more about calculations, data loading, and analytical requirements, you can validate whether your initial choice still fits the application.

Apply Business Logic with Calculations

After planning your application and cube, consider how Essbase needs to derive, aggregate, and transform the business data in your model.

Some results can be produced simply by rolling detailed values up through a hierarchy. Other results require formulas, allocations, forecasts, or a series of calculations that implement a business process.

Understanding these requirements can help you finalize your choice between an aggregate storage (ASO) cube and a hybrid block storage (Hybrid BSO) cube.

Note

The BSO cube category includes hybrid BSO and "classic" BSO. However, because only ASO and hybrid BSO are relevant for Essbase on Autonomous AI Lakehouse, all further references to BSO in this documentation should be considered to mean hybrid BSO.

- [Start with aggregation](#)
The simplest calculations in an Essbase cube often come directly from its hierarchies.
- [Add calculations with Essbase member formulas](#)
Not every business value comes directly from the source data.
- [Consider whether you need allocations](#)
Many business processes require an amount recorded at one level to be distributed across other parts of the business.
- [Consider forecasting requirements](#)
Essbase can also use existing business data as the basis for calculated future values.
- [Decide whether you need a calculation process](#)
- [Finalize the cube type](#)
Using what you've learned about calculations, revisit the initial choice (ASO or BSO) that you made when you started planning your Essbase application.

Start with aggregation

The simplest calculations in an Essbase cube often come directly from its hierarchies.

For example, a Time hierarchy might contain:

Year → Q1 → Jan, Feb, Mar

and a Market hierarchy might contain:

Total Market → North America → United States → California

Essbase can use these relationships to derive higher-level values from lower-level data. For example, monthly sales can contribute to quarterly and yearly totals, while state-level sales can contribute to country and market totals.

This process of combining lower-level values into higher-level values is called **aggregation** or **consolidation**.

If your application primarily needs to summarize large amounts of detailed data across many dimensions and hierarchies for reporting and analysis, ASO is designed for this type of workload.

BSO also supports hierarchical aggregation, but provides additional calculation capabilities that can become important as your business logic becomes more complex.

Add calculations with Essbase member formulas

Not every business value comes directly from the source data.

Suppose your source contains Sales and Cost, but users also need Gross Margin:

Gross Margin = Sales - Cost

You can define a formula for the Gross Margin member in the Essbase outline. The formula becomes part of the business model instead of requiring each query, report, or user to recreate the calculation.

Both ASO and BSO cubes support member formulas. Therefore, the need for formulas by itself does not determine which cube type you should choose.

The formula languages differ. ASO member formulas use MDX expressions. BSO member formulas use the Essbase calculation language. You can learn the appropriate formula syntax after you choose the cube type.

At this stage, focus instead on identifying which business values are included in your Lakehouse, and which Essbase must derive.

For example, ask:

- Is Gross Margin included in the source, or should Essbase calculate it?
- Are percentages and ratios derived from other measures?
- Do some results depend on values from several dimensions?
- Should calculated results be available consistently to everyone who analyzes the cube?

These requirements help define the calculation model for your application.

Consider whether you need allocations

Many business processes require an amount recorded at one level to be distributed across other parts of the business.

For example, suppose you have a corporate marketing budget of \$1 million that must be allocated across regions and products. The allocation might use each region's sales as the basis for determining its share.

Conceptually:

Corporate Marketing Budget → Regions → Products

Allocations are useful for business requirements such as distributing:

- Costs across departments
- Revenue across business units
- Budgets across products or markets
- Shared expenses according to a business driver

Both ASO and BSO support allocations, so the need for an allocation does not automatically determine your cube type.

Consider instead how allocations fit into the broader business process. If the Essbase application requires several calculation steps, calculations performed in a particular sequence, or other processing before or after an allocation, those requirements may point toward BSO.

Consider forecasting requirements

Essbase can also use existing business data as the basis for calculated future values.

For example, a sales application might contain actual results through the current month and use those results to calculate values for future months.

Before deciding how to implement forecasting, determine what the business requires.

A forecast might be relatively simple, such as deriving a future value from a prior period or applying a growth assumption. More sophisticated forecasting can involve trends, historical patterns, assumptions, and calculations that must be performed in a particular sequence.

If forecasting is central to your application and requires a repeatable sequence of business calculations, consider BSO.

You do not need to design the forecasting logic yet. First, identify which values users expect Essbase to derive and how those values depend on other data in the cube.

Decide whether you need a calculation process

So far, the calculation logic examples have focused mostly on individual relationships: roll up these values, calculate this member, allocate this amount, or forecast these periods.

Some Essbase applications require several calc operations to work together as a repeatable business process.

For example, a budgeting process might need to:

1. Start with an existing set of actual values.
2. Apply business assumptions.
3. Calculate forecast values.
4. Allocate shared expenses.

5. Derive revenue, cost, and margin results.
6. Recalculate affected totals.

For this type of application, BSO provides **calculation scripts**.

A calculation script is a set of Essbase calculation instructions that you run against selected areas of a cube. Calculation scripts let you define a series of calculations as a *repeatable process*, rather than relying only on calculations attached to individual members.

This is an important distinction between the Essbase cube types:

- ASO emphasizes multidimensional aggregation and calculations associated with the analytical model.
- BSO supports those modeling concepts while also providing calculation scripts for more procedural, multi-step business processing.

If multi-step calculations are an important requirement, BSO is likely to be the better choice.

Finalize the cube type

Using what you've learned about calculations, revisit the initial choice (ASO or BSO) that you made when you started planning your Essbase application.

If your application primarily needs:	Consider:
Aggregation across large dimensional models	ASO
Reporting and multidimensional analysis of detailed data	ASO
Hierarchical aggregation and member formulas	ASO or BSO
Business formulas without a larger procedural calculation process	ASO or BSO
Allocations	ASO or BSO
Data entry combined with substantial business calculations	BSO
Forecasting that is part of a repeatable calculation process	BSO
Calculations that occur in several steps or in a required sequence	BSO
Calculation scripts that implement recurring business processes	BSO

Your application might contain requirements from both sides of the table. Focus on the requirements that are most important to the application's purpose rather than choosing a cube type based on a single feature.

After you make your choice, continue with the calculation approach that applies to your cube:

- For an ASO cube, learn how aggregation, hierarchies, member formulas, solve order, and supported ASO calculations work together. Refer to: [Design Flow for Aggregate Storage Applications](#)
- For a BSO cube, learn how outline calculations, member formulas, and calculation scripts implement your business logic. Refer to: [About Block Storage Calculation](#)

Prepare Data for Analysis

Prepare the business data that will populate the dimensions, members, and measures in your Essbase cube.

By this point, you have designed the dimensional model and decided whether to use an ASO or BSO cube. Now look at the data in Autonomous AI Lakehouse and determine how it corresponds to that model.

- [Start with your Lakehouse data](#)
Begin with the business data already available in Autonomous AI Lakehouse.
- [Align the data with the cube model](#)
Think about the *grain* of the source data: what does one source record represent?
- [Connect to other sources when needed](#)
Your Lakehouse data should be the natural starting point. If the application also requires supported data outside the Lakehouse, you can create Essbase connections and Datasources for those sources.

Start with your Lakehouse data

Begin with the business data already available in Autonomous AI Lakehouse.

Identify the data that supplies the detailed values in your cube. For example, a sales data set might contain values for product, market, date, revenue, cost, and units. These values must correspond to the dimensions, members, and measures you defined in the Essbase outline.

Before bringing data into the cube, check that:

- Source values can be associated with members in the outline.
- Measures have the expected numeric values and units.
- Time values correspond to the periods in your Time dimension.
- Data is available at the level of detail required by the cube.
- Null, missing, or unexpected values are handled appropriately.

Align the data with the cube model

Think about the *grain* of the source data: what does one source record represent?

For example, one sales record might represent:

Product × Market × Day × Measure

The Essbase cube may provide higher-level views such as product families, regions, quarters, and years, but those higher-level values can be derived through the dimensional model.

You do not need to reshape relational data so that every reporting level is represented separately in the source.

Connect to other sources when needed

Your Lakehouse data should be the natural starting point. If the application also requires supported data outside the Lakehouse, you can create Essbase connections and Datasources for those sources.

Keep external connections focused on data that the application actually requires. You do not need a separate connection merely to work with data already available to Essbase in the Lakehouse.

To learn about setting up connections and Datasources, refer to: [Work with Connections and Datasources](#).

To learn about loading data and dimensions, refer to: [Overview of Data Load and Dimension Build](#) (skip the JDBC driver section, as uploading generic JDBC drivers is not supported for Essbase on Autonomous AI Lakehouse).

Note

To load data or dimensions from files, use DBMS-formatted sources for best efficiency. For more information, see [Data Load Options for Federated Cubes](#).

Manage Access to Applications and Data

Control who can use Essbase applications, what operations they can perform, and what business data they can access.

Use the principle of least privilege: grant users, groups, and connected clients (for example, Smart View) only the access required for their work.

- [Assign access according to responsibility](#)
Different Essbase users require different capabilities.
- [Restrict access to business data](#)
Access to an Essbase application does not necessarily mean access to every value in its cube.
- [Limit access from connected clients](#)
Essbase can be accessed through clients and integrations, including: Smart View, MaxL, REST API, and AI clients connected through the Essbase MCP server.
- [Apply least privilege](#)
Review access to your Essbase application from these perspectives:

Assign access according to responsibility

Different Essbase users require different capabilities.

For example, an analyst might only need to retrieve and analyze data, while an application administrator might need to update the outline, load data, or run calculations.

Assign roles and application permissions according to those responsibilities.

To learn about Essbase roles and permissions, refer to: [Understand Your Access Permissions in Essbase](#)

Restrict access to business data

Access to an Essbase application does not necessarily mean access to every value in its cube.

Use Essbase filters to restrict users to the portions of data appropriate for their responsibilities. For example, a regional manager might be permitted to work with data for one region without having access to other regions.

Where practical, assign access to groups of users with similar responsibilities instead of maintaining equivalent permissions separately for each user.

Refer to: [Control Access to Database Cells Using Security Filters](#).

Limit access from connected clients

Essbase can be accessed through clients and integrations, including: Smart View, MaxL, REST API, and AI clients connected through the Essbase MCP server.

When you configure this type of access, expose only the capabilities the client requires. For example, an AI client used only to explore cube data can use read-only capabilities rather than tools that can change data or application configuration.

The Essbase MCP server provides viewer, analyst, and admin access profiles. These profiles control which MCP tools are exposed to the client, but they do not replace Essbase security. Each operation is still authorized according to the permissions of the authenticated Essbase user.

Refer also to: [Introducing Essbase MCP Server](#).

Apply least privilege

Review access to your Essbase application from these perspectives:

- What does the user need to do?
Refer to: [Understand Your Access Permissions in Essbase](#)
- What data does the user need to access?
Refer to: [Control Access to Database Cells Using Security Filters](#)
- If the user works through an integrated client, what capabilities does that client need?
Refer to: [Choose an Access Profile](#)

Grant only the access required, and review permissions when responsibilities or integrations change.

Validate and Operate Cubes

Validate your Essbase cube with representative business queries and calculations, and monitor the operations that keep the application working as expected.

Creating a cube successfully does not by itself confirm that the business model is correct. Before making an application broadly available, verify its dimensions, hierarchies, data, and calculations against expected business results.

- [Validate the model with representative queries](#)
Choose several known business questions that exercise different parts of the Essbase cube model.
- [Run and validate calculations](#)
For Essbase applications that require explicit calculations, run the applicable calculation process and verify the results.
- [Review jobs and results](#)
Essbase runs many operations as jobs, including operations such as data loads and calculations.
- [Troubleshoot from result to cause](#)
When a result looks wrong, start with expected data value and work backward through the Essbase model and the operations that produced it.

Validate the model with representative queries

Choose several known business questions that exercise different parts of the Essbase cube model.

For example, log in to your cube from Smart View (or use the Analyze view in the Essbase web interface), and try the following types of Ad Hoc queries:

- Retrieve a detailed value and compare it with the source data.
- Retrieve a parent member and confirm that its children contribute as expected.
- Navigate through important Product, Market, and Time hierarchies.
- Verify calculated measures such as Gross Margin.
- Compare results across several dimensions.

Do not test only one successful intersection. Include queries that exercise the important hierarchies and calculations in the application.

If you aren't sure how to proceed, start by practicing in Sample Basic.

For example, in Sample Basic:

- **Check a detailed intersection.** Retrieve Sales for Cola, New York, Jan, Actual, and compare the result with the value you expect from the source data.
- **Check a rollup.** Retrieve Qtr1 and its Jan, Feb, and Mar children for the same Product and Market. Confirm that the quarterly result reflects the expected contribution of the monthly values.
- **Check hierarchy navigation.** Start with Product or Market totals, and drill through important branches to confirm that members are organized correctly.
- **Check a formula member.** Retrieve a formula-calculated measure such as Margin, and compare it with the values from which the calculation is derived.
- **Check multidimensional behavior.** Compare Actual and Budget for several products across markets or time periods to confirm that the dimensions work together as intended.

Note

You can either perform these checks interactively in Smart View, or use MDX reports when you want a repeatable validation query.

Run and validate calculations

For Essbase applications that require explicit calculations, run the applicable calculation process and verify the results.

Check both the calculated values and the areas of the cube affected by the calculation.

For example, in Sample Basic, formulas on the Measures dimension define member relationships such as:

$\text{Margin} = \text{Sales} - \text{COGS}$

and:

$\text{Profit} = \text{Margin} - \text{Total Expenses}$

After running the applicable calculation, retrieve Sales, COGS, Margin, Total Expenses, and Profit for the same Product, Market, Time, and Scenario intersection. Confirm that the calculated members agree with the values from which they are derived.

For example, for a selected product and market, you could verify:

$\text{Margin} = \text{Sales} - \text{COGS}$

then:

$\text{Profit} = \text{Margin} - \text{Total Expenses}$

You can also test the scope of the calculation. If you intended to calculate only a particular market, product family, or time period, retrieve values both inside and outside that area. Confirm that the intended area changed and that unrelated areas were not affected.

If a calculation produces an unexpected result, determine where the discrepancy begins:

- Check the input values first.
- Confirm that members are organized correctly in the outline.
See: Member Calculation Order (for BSO) or Calculation Order and Solve Order in ASO Cubes
- Review consolidation properties and member formulas.
See: Member Consolidation Properties, Develop Formulas for Block Storage Cubes, Develop Formulas on Aggregate Storage Outlines
- Review the calculation logic and the area of the cube that it processes.
- Check the calculation job status and messages for errors or warnings.

Review jobs and results

Essbase runs many operations as jobs, including operations such as data loads and calculations.

Review job status and output to confirm that important operations completed successfully. When a job fails, use its messages and output to identify the operation and objects involved.

Refer to: Run and Manage Jobs Using the Web Interface

Troubleshoot from result to cause

When a result looks wrong, start with expected data value and work backward through the Essbase model and the operations that produced it.

1. Confirm the requested intersection

Make sure you are looking at the intended combination of members. A value in Essbase represents the intersection of dimensions, so verify the Product, Market, Time, Scenario, Measure, and any other dimensions that apply. Many apparent data problems are actually caused by retrieving a different intersection than expected.

2. Compare detailed values with the source

If the result is aggregated or calculated, drill down to the lowest relevant level and compare those detailed values with the source data. This helps determine whether the discrepancy entered the cube during data preparation or loading, or appeared later during aggregation or calculation.

3. Check the hierarchy and member properties

Verify that members are positioned under the correct parents and that their properties support the intended business relationship. For example, confirm that a state belongs to the expected region, that a product rolls up through the correct product family, and that consolidation properties produce the expected contribution to parent values.

4. Review formulas and calculation logic

If detailed input values are correct but derived results are not, inspect the member formula or calculation process that produces the result. For example, if Margin is incorrect while Sales and COGS are correct, review the logic used to derive Margin. If only a particular area of the cube is affected, also confirm that the calculation processed the intended scope.

5. Review the operations that changed the cube

Check job status, messages, and output for recent data loads, calculation runs, or outline updates. A successful job confirms that the operation completed, but you should still verify that it acted on the expected data and model. Failed or partially completed jobs can point directly to the source of the discrepancy.

6. Retest from detail to summary

After correcting the issue, retrieve the detailed values again and then move upward through the hierarchy or calculated results. Confirm that the correction appears at the detailed level and flows through to the expected summaries and business measures.

4

Features

Here are some of the major benefits you get from using Essbase on Autonomous AI Lakehouse.

- [Build Cubes with Application Workbooks](#)
Use an Excel-based application workbook to define and build an Essbase application and cube.
- [Calculate and Aggregate Data](#)
Use Essbase calculations and aggregation to turn detailed business data into summarized and derived results.
- [Analyze Data with Smart View](#)
Use Oracle Smart View for Office to explore and analyze Essbase cube data in Microsoft Excel.
- [Use AI with Essbase](#)
Use AI features in Essbase and connect AI assistants to Essbase workflows.
- [Use MDX for Advanced Analysis](#)
Use MDX when you need precise, repeatable multidimensional queries and calculations that go beyond interactive Essbase analysis.

Build Cubes with Application Workbooks

Use an Excel-based application workbook to define and build an Essbase application and cube.

An application workbook provides a portable representation of the cube design. Workbook worksheets can define the application and cube, dimensions and members, member properties, data, and other cube artifacts.

This makes Excel useful not only for analyzing Essbase data, but also for describing the multidimensional model that Essbase creates.

You can use an application workbook to:

- Define the dimensions and hierarchies of a new cube.
- Specify member properties and formulas.
- Include data and other application artifacts as appropriate.
- Create an Essbase application directly from the completed workbook.
- Update an existing cube by modifying its workbook definition.

Application workbooks are particularly useful when you want the cube design in a format that can be reviewed and edited outside the Essbase web interface.

For the workbook format and supported worksheet definitions, see Application Workbooks Reference.

Calculate and Aggregate Data

Use Essbase calculations and aggregation to turn detailed business data into summarized and derived results.

The model-selection process is covered in [Plan an Application and Cube](#) and [Apply Business Logic with Calculations](#). After you've selected the cube type, use the topic that matches your cube:

- [Work with calculations in ASO cubes](#)
Essbase aggregate storage (ASO) cubes are designed for aggregation-intensive analysis.
- [Work with calculations in Hybrid BSO cubes](#)
Essbase block storage (BSO) cubes support hierarchical aggregation and member formulas, and also provide calculation scripts for repeatable application of required business logic.

Work with calculations in ASO cubes

Essbase aggregate storage (ASO) cubes are designed for aggregation-intensive analysis.

Essbase can roll detailed values up through dimension hierarchies, so users can analyze summarized results at higher levels of the business model.

For example:

Jan + Feb + Mar → Q1

California + Oregon + Washington → West

Individual Products → Product Family → Total Products

Use member formulas when a result must be derived rather than simply aggregated. ASO member formulas are built using MDX expressions.

For example:

Margin = Sales - Cost

or:

Margin % = Margin / Sales

When member with formulas depend on one another, use solve order to control the sequence in which formulas are evaluated.

ASO also supports custom calculations and allocations for distributing or deriving values across selected areas of the cube. For example, you can allocate a shared expense across departments or distribute a budget across products according to a business driver.

For detailed information about ASO aggregation, formulas, solve order, custom calculations, and allocations, refer to the applicable sections of the *Essbase Database Administrator's Guide*:

- Aggregation of Data in an ASO Cube
- Develop Formulas on Aggregate Storage Outlines
- Calculation Order and Solve Order in ASO Cubes
- Custom Calculations and Allocations on Aggregate Storage Cubes

Work with calculations in Hybrid BSO cubes

Essbase block storage (BSO) cubes support hierarchical aggregation and member formulas, and also provide calculation scripts for repeatable application of required business logic.

Note

The BSO cube category includes hybrid BSO and "classic" BSO. However, because only ASO and hybrid BSO are relevant for Essbase on Autonomous AI Lakehouse, all references to BSO in this documentation should be considered to mean hybrid BSO.

BSO member formulas use the Essbase calculation language, and can define derived measures such as:

Margin = Sales - Cost

Use calculation scripts when business logic needs to operate across selected areas of the cube, or when several calculations must run as a repeatable process.

A calculation script can be used to:

- Calculate selected dimensions or members
- Apply formulas across a defined area of the cube
- Perform calculations in a required sequence
- Apply assumptions or business rules
- Allocate values
- Calculate forecasts and other modeled results

For example, a budgeting process might apply assumptions, calculate forecast values, allocate shared expenses, and then derive profitability measures.

Some BSO members can also be calculated dynamically when users retrieve them, while other results can be calculated through scripts. This gives you flexibility in deciding when business logic should be evaluated.

For detailed information about BSO calculation, review the documentation:

- Block Storage Database Calculation Order
- Calculation Commands
- Calculation Functions
- Calculate Essbase Block Storage Databases
- Calculation Script Calculation
- Develop Formulas for Block Storage Cubes

Analyze Data with Smart View

Use Oracle Smart View for Office to explore and analyze Essbase cube data in Microsoft Excel.

Smart View brings the dimensions and hierarchies of your Essbase model into a familiar spreadsheet environment. Instead of writing a new query each time you want a different view, you can interactively rearrange the dimensions and members in the worksheet.

For example, you can:

- Retrieve Essbase cube data into a worksheet.
- Pivot dimensions between rows and columns.
- Drill from summary members to greater detail.
- Change the point of view to analyze a different product, market, time period, or scenario.
- Compare data values across dimensional perspectives.
- Refresh the worksheet with current Essbase results.
- Share analytical workbook layouts with other authorized Essbase users.

Suppose a worksheet initially shows quarterly sales by Market. You can pivot Product into the rows, drill from Total Market into individual regions, and change the Scenario selection from Actual to Budget without redesigning the underlying Essbase cube.

Smart View uses the dimensional model you created in Essbase, providing interactive analysis of your business data in Excel worksheets. Dimensions, hierarchies, formulas, and access controls remain governed by the cube.

For a deeper dive, refer to:

- [Working with Oracle Smart View for Office](#)
- [Working with Oracle Smart View for Office \(Mac and Browser\)](#)

Use AI with Essbase

Use AI features in Essbase and connect AI assistants to Essbase workflows.

Essbase provides AI-powered capabilities. Choose the one that matches what you are trying to accomplish.

Note

Oracle Essbase includes features powered by artificial intelligence (AI) and Generative AI (Gen AI). While Oracle strives to provide accurate results, Gen AI outputs may be incorrect, incomplete, or inappropriate. Information provided by Gen AI features should be verified by users before taking action or making decisions based on it. Oracle is not liable for damages or losses arising from the use of Gen AI features.

- [Connect AI assistants with MCP Server](#)
Use the **Essbase MCP Server** when you want an external AI assistant or other MCP-compatible client to interact with Essbase.

- [Ask questions about Essbase](#)
Use **Ask Essbase** when you need help understanding Essbase technology and how to use it.

Connect AI assistants with MCP Server

Use the **Essbase MCP Server** when you want an external AI assistant or other MCP-compatible client to interact with Essbase.

Essbase includes a built-in Model Context Protocol (MCP) server. Through MCP tools, an AI client can perform supported Essbase operations such as:

- Query cube data.
- Run calculations.
- Load data.
- Inspect applications, cubes, and outlines.
- Perform supported administrative operations.

The MCP server is built on the Essbase REST API and uses Essbase authentication.

MCP access profiles help limit which tools a client can use. Choose an access level appropriate to the workflow, and continue to rely on Essbase permissions to control what the authenticated user is actually authorized to do.

MCP Server is appropriate when AI needs to become part of a broader application or administrative workflow rather than being used only inside the Essbase web interface.

See: [Introducing Essbase MCP Server](#).

Ask questions about Essbase

Use **Ask Essbase** when you need help understanding Essbase technology and how to use it.

Ask Essbase provides a chat-style interface in the Essbase web interface. You can enter natural-language questions about Essbase and receive answers based on Oracle Essbase documentation, with links to supporting content.

For example, you might ask:

- How do member formulas work?
- What is the difference between a dimension and an attribute?
- How do I create a data load rule?
- When should I use an ASO cube?

Ask Essbase is useful when you are learning a feature, looking for the right workflow, or trying to find relevant documentation without first knowing the exact Essbase terminology.

Refer to: [Overview of Ask Essbase](#).

Use MDX for Advanced Analysis

Use MDX when you need precise, repeatable multidimensional queries and calculations that go beyond interactive Essbase analysis.

Smart View is useful when you want to explore cube data interactively in Excel. AI can provide a conversational way to explore your data in Essbase. MDX provides a query language for explicitly defining the members, sets, dimensions, and calculations that an analytical query requires.

MDX can be useful when you need to:

- Repeat the same multidimensional query consistently.
- Select members based on hierarchy relationships.
- Construct sets of members for analysis.
- Perform calculations as part of a query.
- Embed multidimensional queries in automated or application workflows.
- Precisely control the rows, columns, and point of view returned by a query.
- Define member formulas in an aggregate storage (ASO) cube outline.

For example, an MDX query could request **Sales and Margin for each region for FY26**, returning exactly the members and dimensional intersections required by an application or recurring analysis.

MDX is an extensive language. This topic introduces where it fits in an Essbase analytical workflow; use the MDX Reference for functions, syntax, and additional examples. See MDX.

5

Reference

Here are some helpful Essbase reference materials.

Note

The reference pages describe the broader Essbase feature set. Use only commands and functions supported by Essbase on Autonomous AI Lakehouse.

- [Calc Commands](#)
Use calculation commands to control what a calculation script calculates and how it performs the calculation. Consult the command reference for syntax, arguments, and examples.
- [Calc Functions](#)
Use calculation functions in calculation scripts and member formulas to perform specialized calculations. The function reference helps you find functions for mathematical, financial, member-selection, and time-based calculations.
- [Application Workbooks](#)
Use an application workbook to define and update a cube from Microsoft Excel. The application workbooks reference describes the workbook sheets, formats, and properties that Essbase uses to create the cube.

Calc Commands

Use calculation commands to control what a calculation script calculates and how it performs the calculation. Consult the command reference for syntax, arguments, and examples.

See Calculation Commands.

Calc Functions

Use calculation functions in calculation scripts and member formulas to perform specialized calculations. The function reference helps you find functions for mathematical, financial, member-selection, and time-based calculations.

See Calculation Functions.

Application Workbooks

Use an application workbook to define and update a cube from Microsoft Excel. The application workbooks reference describes the workbook sheets, formats, and properties that Essbase uses to create the cube.

See Application Workbooks Reference.

6

Limitations

Here are considerations to keep in mind about Essbase on Autonomous AI Lakehouse.

- [Restrictions](#)
Essbase on Autonomous AI Lakehouse is an Oracle-managed cloud service.
- [Known Issues](#)
Known issues for Essbase on Autonomous AI Lakehouse are listed here.
- [Notes for existing Essbase users](#)
If you have used Oracle Essbase as an independent deployment or as a stack deployed from OCI Marketplace, many of the concepts in this guide will be familiar.

Restrictions

Essbase on Autonomous AI Lakehouse is an Oracle-managed cloud service.

Oracle manages the service infrastructure and its integration with Autonomous AI Lakehouse, so you can focus on modeling, calculations, and analysis.

Most readers can use the tasks in this guide without needing to consider these limitations. The differences are most relevant when you move applications, calculation scripts, or processes from another Essbase offering.

Managed Service Boundaries

You do not need to deploy and configure Essbase on Autonomous AI Lakehouse, as it is Oracle managed.

Application Design

Each Essbase application contains one cube.

Features Not Available/ Not Relevant

Essbase on Autonomous AI Lakehouse does not include:

- Scenario management (sandbox cube environment with approval workflows)
- Legacy Essbase currency conversion cubes
- Data audit using Essbase AUDITRAIL configuration (Autonomous AI Lakehouse has its own data audit capabilities)
- Essbase triggers for cube events
- Shadow applications are not available
- Making copies of applications or cubes is not supported

Calculations and Data Operations

Do not assume that a calculation script from another Essbase offering will run without changes. Some advanced calculation features are not supported. To review official limitations, refer to: Restrictions for Federated Cubes.

If you need to load additional source files beyond what is in Lakehouse, use a DBMS-formatted source file for efficient data loading. Refer to: Data Load Options for Federated Cubes.

Moving Existing Applications

Lifecycle Management import operations and Migration Utility imports are not available. Review existing applications and processes before you move them to Essbase on Autonomous AI Lakehouse.

Known Issues

Known issues for Essbase on Autonomous AI Lakehouse are listed here.

Notes for existing Essbase users

If you have used Oracle Essbase as an independent deployment or as a stack deployed from OCI Marketplace, many of the concepts in this guide will be familiar.

Applications, cubes, dimensions, members, hierarchies, calculations, Smart View, MDX, REST APIs, MaxL, and application workbooks continue to be important when you use Essbase on Autonomous AI Lakehouse.

However, Essbase on Autonomous AI Lakehouse is an Oracle-managed cloud service. There is no customer-managed Essbase installation or deployment process. Some administration, data integration, application management, and calculation practices differ from those used with other Essbase offerings.

- [Oracle manages Essbase](#)
With Essbase on Autonomous AI Lakehouse, you do not install, patch, back up, or configure the Essbase network infrastructure. Essbase is provided through the Autonomous AI Database and Data Studio environment.
- [Application and cube structure](#)
Each Essbase application on Autonomous AI Lakehouse contains one cube. The supported cube types are aggregate storage (ASO) and hybrid block storage (hybrid BSO).
- [Understand the Lakehouse integration](#)
Autonomous AI Lakehouse data is the natural starting point for an Essbase application. You do *not* need to create or administer a federated partition as described for the Marketplace Essbase offering.
- [Access and connected clients](#)
In addition to Smart View, REST API, MDX, and MaxL, the Essbase MCP Server provides another way for an AI client to interact with Essbase.
- [Building from Excel](#)
Application workbooks provide an Excel-based method for defining and building Essbase applications and cubes.
- [Calculation and feature differences](#)
Not every calculation command, function, data operation, or configuration option available in other Essbase offerings applies to Essbase on Autonomous AI Lakehouse.
- [Bringing in existing applications and processes](#)
Lifecycle Management import operations and Migration Utility imports are not available for Essbase on Autonomous AI Lakehouse.

- [How to use this guide](#)
If you already understand Essbase concepts, use this guide to learn how Essbase on Autonomous AI Lakehouse works with Lakehouse data and which capabilities apply:

Oracle manages Essbase

With Essbase on Autonomous AI Lakehouse, you do not install, patch, back up, or configure the Essbase network infrastructure. Essbase is provided through the Autonomous AI Database and Data Studio environment.

Oracle manages the service infrastructure and its integration with Autonomous AI Lakehouse. You can focus on designing business models, preparing data, defining calculations, managing access, and analyzing results.

Do not apply procedures intended for customer-managed Essbase environments. For the current process to access Essbase, refer to [Launch Essbase on Autonomous AI Lakehouse](#).

Application and cube structure

Each Essbase application on Autonomous AI Lakehouse contains one cube. The supported cube types are aggregate storage (ASO) and hybrid block storage (hybrid BSO).

Classic BSO is not supported. When this guide refers to a BSO cube, assume it means a hybrid BSO cube.

If needed, use the planning guidance in the [Tasks](#) section to evaluate whether ASO or hybrid BSO is appropriate for your business model.

Understand the Lakehouse integration

Autonomous AI Lakehouse data is the natural starting point for an Essbase application. You do *not* need to create or administer a federated partition as described for the Marketplace Essbase offering.

Instead, design the Essbase business model and prepare the Lakehouse data so that it corresponds to the dimensions, members, hierarchies, and measures in the cube.

All cubes in Essbase on Autonomous AI Lakehouse are federated cubes.

However, you do not create or administer a federated partition as described for an Essbase deployment from OCI Marketplace.

If the application requires data outside the Lakehouse, you can use supported Essbase connections and Datasources.

Note

Generic JDBC drivers cannot be uploaded for use with Essbase on Autonomous AI Lakehouse.

For file-based data loads, DBMS-formatted source files are recommended for efficient loading. See [Prepare Data for Analysis](#).

Access and connected clients

In addition to Smart View, REST API, MDX, and MaxL, the Essbase MCP Server provides another way for an AI client to interact with Essbase.

MCP access profiles control which tools are exposed to the client, but they do not replace Essbase user permissions or data filters.

When reviewing access, consider these areas separately:

- What the user is allowed to do in the Essbase application.
- What data the user is allowed to access.
- What capabilities a connected client is allowed to use.

See [Manage Access to Applications and Data](#).

Building from Excel

Application workbooks provide an Excel-based method for defining and building Essbase applications and cubes.

You can import application workbooks to define dimensions, members, member properties, formulas, data, and other cube artifacts. Use the Application Workbooks Reference for supported worksheet definitions and formats.

Note

Cube Designer is not currently supported for Essbase on Autonomous AI Lakehouse.

Calculation and feature differences

Not every calculation command, function, data operation, or configuration option available in other Essbase offerings applies to Essbase on Autonomous AI Lakehouse.

Do not assume that an existing calculation script will run without changes. Review the documented restrictions before moving calculation scripts or processes to Essbase on Autonomous AI Lakehouse. See: Calculate and Query Federated Cubes.

Some familiar Essbase features are unavailable or not relevant, including:

- Scenario Management, sandbox, and private-scenario workflows.
- Shadow applications.
- Currency conversion cubes.
- Cube-event triggers.
- Copying applications or cubes.
- Certain advanced calculation and data-management operations.

For the complete list of restrictions, see Restrictions for Federated Cubes.

Bringing in existing applications and processes

Lifecycle Management import operations and Migration Utility imports are not available for Essbase on Autonomous AI Lakehouse.

Before bringing an existing application or process to Essbase on Autonomous AI Lakehouse, review:

- The application and cube structure.
- Data-load and dimension-build processes.
- Calculation scripts and formulas.
- MaxL statements and REST operations.
- Security filters and user permissions.
- Dependencies on unsupported features or configuration settings.

Check [Restrictions](#).

An application or process that works in another Essbase offering may require redesign or modification before it can be used with Essbase on Autonomous AI Lakehouse.

How to use this guide

If you already understand Essbase concepts, use this guide to learn how Essbase on Autonomous AI Lakehouse works with Lakehouse data and which capabilities apply:

- Use [Quick Start](#) for the current access and first-session workflow.
- Use [Tasks](#) for Lakehouse data modeling, application planning, calculations, access, and validation.
- Use [Features](#) for application workbooks, Smart View, AI, and MDX.
- Use [Reference](#) for syntax and detailed technical information.
- Use [Limitations](#) to identify differences from other Essbase offerings.