



## Amazon Cloud Directory ▾

Overview

Features

Pricing

Getting Started

FAQs

## General

### What is Amazon Cloud Directory?

Amazon Cloud Directory is a cloud-native, highly scalable, high-performance, multi-tenant directory service that provides web-based directories to make it easy for you to organize and manage all your application resources such as users, groups, locations, devices, and policies, and the rich relationships between them. Cloud Directory is a foundational building block for developers to create directory-based solutions easily and without having to worry about deployment, global scale, availability, and performance.

Unlike existing traditional directory systems, Cloud Directory does not limit organizing directory objects in a single fixed hierarchy. In Cloud Directory, you can organize directory objects into multiple hierarchies to support multiple organizational pivots and relationships across directory information. For example, a directory of users may provide a hierarchical view based on reporting structure, location, and project affiliation. Similarly, a directory of devices may have multiple hierarchical views based on its manufacturer, current owner, and physical location.

Cloud Directory provides virtually unlimited directories. It scales each directory to hundreds of millions of nodes automatically while offering consistent performance. Cloud Directory is optimized for a high rate of low-latency, eventually consistent reads. Developers model directory objects using extensible schemas to enforce data correctness constraints automatically and to make it easier to program against. Cloud Directory offers rich information lookup based on customer-defined indexed attributes, thus enabling fast tree traversals and searches within the directory trees. Cloud Directory data is encrypted at rest and in transit.



## Amazon Cloud Directory ▾

### Overview

### Features

### Pricing

### Getting Started

### FAQs

- Extensible object schema support to simplify application development and ease interoperability across multiple applications interacting with common directory information.
- Seamless scaling to millions of objects and classifications.
- The ability to define various types of application-specific policies on directory objects.
- Encryption at rest and in transit.

[Show less](#)

### What are core use cases for Cloud Directory?

Customers can use Cloud Directory to build applications such as IoT device registries, social networks, network configurations, and user directories. Each of these use cases typically needs to organize data hierarchically, perform high-volume and low-latency lookups, and scale to hundreds of millions of objects with global availability.

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### What kind of customers can use Cloud Directory?

Customers of all sizes can use Amazon Cloud Directory to build directory-based applications easily.

[Show less](#)

### When should I use Amazon Neptune and Amazon Cloud Directory?



## Amazon Cloud Directory

Overview

Features

Pricing

Getting Started

FAQs

Cloud Directory is a high-performance, fully-managed, hierarchical datastore. Cloud Directory is a highly scalable multi-tenant service that makes it easy for customers to organize and manage all their multi-dimensional data such as users, groups, locations, and devices and the rich relationships between them.

Cloud Directory is optimized for multi-dimensional, hierarchical data. Customers can build different dimensions of data using Schema facets to define the objects within these dimensions (such as employees, devices, locations). Cloud Directory has algorithms and APIs that are purpose built to traverse these hierarchies and collect information along the paths in an efficient manner. Other characteristics are high read to write ratio and data sets with low amount of storage. Cloud Directory is targeted for use cases such as human resources applications, course catalogs, device registry and network topology. Additionally, customer applications that need fine-grained permissions (Authorization) are well suited to leverage capabilities in Cloud Directory.

[Show less](#)

How is Cloud Directory different than traditional directories?

Amazon Cloud Directory is a foundational service for developers to build cloud-native directories for hundreds of millions of objects and relationships. It provides the necessary APIs for you to create a directory with a schema, add objects and relationships, and attach policies to those objects and relationships.

Traditional LDAP-based directories are designed as IT tools for organizations to manage users and devices. They provide authentication and policy frameworks, but lack the scalability to manage



## Amazon Cloud Directory

Overview

Features

Pricing

Getting Started

FAQs

Amazon Cognito User Pools is an identity solution for developers that need authentication, federation, and credentials management for users.

Amazon Cloud Directory is designed for developers who need to manage large volumes of hierarchical data, and need a flexible directory solution that supports multiple sets of relationships and built-in data validation.

[Show less](#)

## Core Concepts

**What are the key terms and concepts that I need to be aware of to use Amazon Cloud Directory?**

To use Amazon Cloud Directory, you need to know the following key terms:

- [Directory](#)
- [Schema](#)
- [Facet](#)
- [Object](#)
- [Attribute](#)
- [Hierarchy](#)
- [Policy](#)



## Amazon Cloud Directory ▾

Overview

Features

Pricing

Getting Started

FAQs

### What is a schema?

A schema defines facets, attributes, and constraints allowed within a directory. This includes defining:

- One or more types of facets that may be contained within a directory (such as Person, Organization\_Person).
- Attributes required or allowed on various types of facets.
- Constraints (such as required or unique, primitive data types such as integer, string, and others).

[Show less](#)

### What is a facet?

A facet is a collection of attributes and constraints. A single or multiple facets when combined help define the objects in a directory. For example, Person and Device can be facets that define corporate employees with the associations of multiple devices.

[Show less](#)

### What is an object?

An object represents a structured data entity in a directory. An object in a directory is intended to capture metadata about a physical or logical entity, usually for the purpose of information discovery and enforcing policies. For example, users, devices, and applications are all types of objects. An object's structure and type information are expressed using a collection of facets.



## Amazon Cloud Directory ▾

Overview

Features

Pricing

Getting Started

FAQs

A hierarchy is a view in which groups and objects are organized in parent-child relationships similar to a file system in which folders have files and subfolders beneath them. Amazon Cloud Directory supports organizing objects into multiple hierarchies.

[Show less](#)

### What is a policy?

A policy is a specialized object type with attributes that define the type of policy and policy document. A policy can be attached to objects or the root of a hierarchy. By default, objects inherit policies from their parents. Amazon Cloud Directory does not interpret policies.

[Show less](#)

## Setup

### How do I provision a new directory in Amazon Cloud Directory?

You can provision a new directory in Amazon Cloud Directory with the following steps:

1. Sign in to any of your AWS accounts with privileges to manage Cloud Directory.
2. Open the [AWS Management Console](#) and navigate to the Amazon Cloud Directory console.
3. Click **Create New Directory**.
4. Provide a name for your new directory.



## Amazon Cloud Directory ▾

Overview

Features

Pricing

Getting Started

FAQs

[Show less](#)

## Schemas

### How do I create and manage schemas?

Amazon Cloud Directory provides an SDK and CLI to create, read, and update schemas. Cloud Directory also supports uploading a compliant JSON file to create a schema. You can also create and manage schemas using the Cloud Directory console.

[Show less](#)

### Does Amazon Cloud Directory provide any sample schemas?

Yes, currently Amazon Cloud Directory provides the following sample schemas:

- Organization
- Person (User)
- Device

[Show less](#)



## Amazon Cloud Directory ▾

Overview

Features

Pricing

Getting Started

FAQs

[Show less](#)

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## Amazon Cloud Directory

**Overview**

**Features**

**Pricing**

**Getting Started**

**FAQs**

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## Amazon Cloud Directory

### Overview

### Features

### Pricing

### Getting Started

### FAQs

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**Amazon Cloud Directory** ▾

- Overview**
- Features**
- Pricing**
- Getting Started**
- FAQs**

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