

Swiftdata and CloudKit

**Step 1. Add capability :
iCloud**

Navigation sidebar for the Xcode project 'swiftData_2026'. It shows a tree view of the project structure:

- swiftData_2026 (M)
 - swiftData_2026
 - Assets
 - ContentView (M)
 - swiftData_2026 (A)
 - swiftData_2026App (M)
 - ToDoItem (A)
 - swiftData_2026Tests
 - swiftData_2026Tests
 - swiftData_2026UITests
 - swiftData_2026UITests
 - swiftData_...aunchTests

Configuration panel for the 'swiftData_2026' target, showing the 'Signing & Capabilities' tab. The top status bar indicates the target was successfully built on 'Jiann-Ming's iPhone'.

PROJECT

- swiftData_2026

TARGETS

- swiftData_2026 (Selected)
- swiftData_2026Tests
- swiftData_2026UITests

Signing & Capabilities

- Signing**
 - Automatically manage signing
Xcode will create and update profiles, app IDs, and certificates.
 - Team: Jiann-Ming Wu
 - Bundle Identifier: ItLab-AMNDHU.swiftData-2026
- iOS**
 - Provisioning Profile: Xcode Managed Profile ⓘ
 - Signing Certificate: Apple Development: Jiann-Ming Wu (52852LH42...)
- iCloud ⓘ**
 - Services
 - Key-value storage
 - iCloud Documents
 - CloudKit
 - Containers
 - iCloud.Amndhu.test_camera
 - iCloud.HelloCoreDataModel
 - iCloud.iCloud.phonebook
 - + ⓘ
 - CloudKit Console
- Push Notifications ⓘ**
 - Push Notifications Console

default store) was successful

Step 2, set containers

General **Signing & Capabilities** Resource Tags Info Build Settings Build Phases Build Rules

+ Capability | All Debug Release

PROJECT

- swiftData2025

TARGETS

- swiftData2025
- swiftData2025Tests
- swiftData2025UITe...

Push to Talk

Remote notifications

Uses Bluetooth LE accessories

Uses Nearby Interaction

Voice over IP

▼ iCloud ⓘ

Services

- Key-value storage
- iCloud Documents
- CloudKit

Containers

- iCloud.com.amndhu.swiftData2025
- iCloud.Amndhu.test_camera
- iCloud.HelloCoreDataModel

+ ↻

CloudKit Console

Copy bundle identifier to set containers

**Step 3, add capability:
background modes**

Background Modes ⓘ

- Options
- Acts as a Bluetooth LE accessory
 - Audio, AirPlay, and Picture in Picture
 - Background fetch
 - Background processing
 - External accessory communication
 - Location updates
 - Push to Talk
 - Remote notifications
 - Uses Bluetooth LE accessories
 - Uses Nearby Interaction
 - Voice over IP

Set remote notification

Step 4, set fields to be optional or with an initial value

```
8 import Foundation
9 import SwiftData
10
11 @Model
12 class TodoItem: Identifiable{
13     var id: UUID = UUID()
14     var name: String = ""
15     var isComplete: Bool = false
16
17     init(name : String, isComplete: Bool){
18         self.name = name
19         self.isComplete = isComplete
20     }
21 }
22 }
23
```

Step 5. Edit Scheme

Project Explorer: swiftData2025

- swiftData2025
 - Info
 - swiftData2025
 - swiftData2025App
 - ContentView
 - ToDoItem**
 - Assets
 - Preview Content
- swiftData2025Tests
 - swiftData2025Tests
- swiftData2025UITests
 - swiftData2025UITests
 - swiftData202...tsLaunchTests

Product menu:

- Run ⌘ R
- Test ⌘ U
- Profile ⌘ I
- Analyze ⌘ B
- Archive
- Build For >
- Perform Action >
- Build ⌘ B
- Clean Build Folder... ⌘ K
- Clear Test Results ⌘ K
- Clear All Issues
- Stop ⌘ .
- Build Documentation ⌘ D
- Show Build Folder in Finder
- Copy Build Folder Path
- Export Localizations...
- Import Localizations...
- Scheme >
- Destination >
- Test Plan >
- App Shortcuts Preview

Code Editor: swiftData2025.swift

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```


Output Console: Finished running swiftData2025 on Jiann-Ming's iPhone

Log: by A326 on 2025/5/11.


```


Item: Identifiable{
    UUID = UUID()
    name: String = ""
    isComplete: Bool = false
}
isComplete


```


>  **Build**
2 targets


>  **Run**
Debug

>  **Test**
Debug

>  **Profile**
Release

>  **Analyze**
Debug

>  **Archive**
Release

 swiftData2025

Info Arguments Options Diagnostics

Arguments Passed On Launch

-com.apple.CoreData.CloudKitDebug 1

+ -


Environment Variables

Name

Value

No Environment Variables

+ -

Expand Variables Based On  swiftData2025

Duplicate Scheme

Manage Schemes...

Shared

Close

Add
Argument

Step 6. Cloudkit console

iCloud.com.amndhu.swiftData2025

Development

Monitor

Telemetry

Usage

Logs

Alerts

Data

Records

Zones

Subscriptions

Records

Private Database

com.apple.coredata.cloudkit.zone

Query Records

Saved Queries

RECORD TYPE



—

FIELDS



All

Query Records

Query records to get started.

Field
'recordName' is
not marked
queryable

! Field 'recordName' is not marked queryable I

Step 7, Add index

- Alerts
- Data
 - Records
 - Zones
 - Subscriptions
- Schema
 - Indexes – Modified
 - Record Types – Modified
 - Security Roles – Modified
 - History
- Settings
 - Tokens & Keys
 - Sharing Fallback
 - Act As iCloud Account...
 - Deploy Schema Changes...
 - Import Schema...
 - Export Schema...
 - Reset Environment

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CD_isComp
CD_isComp
CD_name
CD_name (queryable)

Add Index

Record types have fields that allow you to store to different types on the record, such as a string, a list, reference, asset, etc.

Record Type ?

Name

Type ?

Field ?

Cancel Add

- Monitor
- Telemetry
- Usage
- Logs
- Alerts 🔒

- Data
- Records**
- Zones
- Subscriptions

- Schema
- Indexes – Modified
- Record Types – Modified
- Security Roles – Modified
- History

- Settings
- Tokens & Keys
- Sharing Fallback

- 👤 Act As iCloud Account...
- 🔄 Deploy Schema Changes...
- 📄 Import Schema...

Records +

📁 Private Database ▾
📁 com.apple.coredata.cloudkit.zone ▾
🔍 Query Records ▾
📌 Saved Queries ▾

RECORD TYPE ▾
CD_ToDoItem
FIELDS ▾
All
Add filter or sort to query
🔍 Query Records

Name	Type	CD_entityName	CD_id	CD_isComplete	CD_name	Ch. Tag	Created
8B2396BB-E91F-4...	CD_ToDoItem	ToDoItem	8CE7B295-E136-4F...	0	write a blog post	4	2026/3/29 L
A75CE0CC-39EA-...	CD_ToDoItem	ToDoItem	1166B077-E539-4E6...	0	praticce yoga	5	2026/3/29 L
B24351CC-E0B3-...	CD_ToDoItem	ToDoItem	A69FB709-3F4A-43...	1	finish homework	3	2026/3/29 L

3 items