# IOS Native Unity3D Plugin

**Anyone can comment**

---

## *Overview*

plugin provides the easy and flexible functionality of IOS native functions which are not available from Unity, including Game Center, in-app purchases, & native alerts and events.

Please read Plugin Setup Guide before using the plugin.

If you're new to IOS app development, please also read IOS Application Setup Guide.

**All Source Code is Open!**

Plugin supports:

- **Game Center**
- Show leaderboard by its id
- Score report by leaderboard id
- Game Center Achievements
- **In-App purchases (Cons. / Non-Cons.)**
- Restore purchases implementation
- **Native Pop-ups**
- Rate Pop-up
- Dialog Pop-up
- Message Pop-up
- IOS Native Events
- Flash Like Events as gift

## *Native Pop Up's*

description of `IOSRateUsPopUp, IOSDialog, IOSRateUsPopUp`

### IOS Rate Pop Up

Pop up creation:

```
IOSRateUsPopUp rate = IOSRateUsPopUp.Create();
```

Rate pop up will appear after this lines, if you want to listen rate pop up events you should add COMPLETE listener to it.

```
rate.addEventListener(BaseEvent.COMPLETE, onRatePopUpClose);
```

example of onRatePopUpClose function:

```
private void onRatePopUpClose(CEvent e) {
        (e.dispatcher as IOSRateUsPopUp)
            .removeEventListener(BaseEvent.COMPLETE, onRatePopUpClose);
        string result = e.data.ToString();
        IOSNative.showMessage("Result", result + " button pressed");
}
```

IOSDialogResult result can contain: `RATED,REMIND,DECLINED` of `IOSDialogResult` class.

### IOS Dialog Pop Up

Creation:

```
IOSDialog dialog = IOSDialog.Create("Dialog Titile", "Dialog message");
```

Listeners:

```
dialog.addEventListener(BaseEvent.COMPLETE, onDialogClose);
```

onDialogClose function example:

```
private void onDialogClose(CEvent e) {

        //romoving listner
        (e.dispatcher as IOSDialog).removeEventListener(BaseEvent.COMPLETE,
onDialogClose);

        //parsing result
        switch((IOSDialogResult)e.data) {
        case IOSDialogResult.YES:
            Debug.Log ("Yes button pressed");
            break;
        case IOSDialogResult.NO:
            Debug.Log ("Yes button pressed");
            break;

        }

        string result = e.data.ToString();
        IOSNative.showMessage("Result", result + " button pressed");
  }
```

IOSDialogResult result can contain: `YES,NO` of `IOSDialogResult` class.

## IOS Message Pop Up

### Creation:

```
IOSMessage msg = IOSMessage.Create("Message Titile", "Message message");
```

### Lisners:

```
msg.addEventListener(BaseEvent.COMPLETE, onMessageClose);
```

onDialogClose function example:

```
private void onMessageClose(CEvent e) {
        (e.dispatcher as IOSMessage).removeEventListener(BaseEvent.COMPLETE,
onMessageClose);
        IOSNative.showMessage("Result", "Message Closed");
 }
```

# *Game Center*

## Classes Documentation

### GameCenteManager class.

*Starts Game Center. Should be called on start up.*

*Triggers GAME_CENTER_PLAYER_AUTHENTICATED event*

public static void init()

*Show leaderboard UI by its ID*

public static void showLeaderBoard(string leaderBoradrId)

*Show leaderboards*

public static void showLeaderBoards()

*Submit Score to leaderboard by it ID*

public static void reportScore(int score, string leaderBoradrId)

*Send leaderboard score request by leaderboard ID. Triggers GAME_CENTER_LEADER_BOARD_SCORE_LOADED event*

public static void getScore(string leaderBoradrId)

*Show Achievements UI*

public static void showAchievements()

*Reset All Achievements progress*

public static void  resetAchievements()

*Submit Achievement progress*

public static void  submitAchievement(int percent, string achievementId)

public static void  submitAchievement(int percent, string achievementId, bool isCompleteNotification)

*Gets achievement progress by it ID*

public static float getAchievementProgress(string id)

## Getters:

*Achievements array*

public static List<AchievementTemplate> achievements {get;}

*Current player info*

public static GameCenterPlayerTemplate player

*Event dispatcher. Should be used for event listening*

public static EventDispatcherBase dispatcher

## Events:

*Fires when local player is authed. Event does not contain any data.*

GAME_CENTER_PLAYER_AUTHENTICATED

*Fires when player has canceled authentication flow or any other error occurred during authentication process. Event does not contain any data.*

GAME_CENTER_PLAYER_AUTHENTIFICATION_FAILED

*Fires on leaderboard score loaded. Event data contains* LeaderBoardScoreData.
GAME_CENTER_LEADER_BOARD_SCORE_LOADED

*Fires on achievement progress. Event data contains* AchievementTemplate.
GAME_CENTER_ACHIEVEMENT_PROGRESS

*Fires when achievement data is loaded. Event does not contain any data*
GAME_CENTER_ACHIEVEMENTS_LOADED

## GameCenterMultiplayer class.

---

*Start looking for a match. MATCH_STARTED event will be called as soon as mutch is found.*

public void FindMatch(int minPlayers, int maxPlayers)

*Sends data to all match players*

public void SendDataToAll(byte[] buffer, int sendType)

*Sends data to specified players*

public void sendDataToPlayers(byte[] buffer, int sendType, params object[] players)

*Disconnects from current match*

public void disconnect()

### Getters:

*Current match data*
public GameCenterMatchData match

### Events:

*Fires when new player has connected to game. Event contains player id as data*

PLAYER_CONNECTED

*Fires when new player has disconnected to game. Event contains player id as data*

PLAYER_DISCONNECTED

*Fires when player match started. Event contains GameCenterMatchData as data.*

MATCH_STARTED

*Fires when new data received. Event contains GameCenterDataPackage as data.*

DATA_RECIVED

## GameCenterDataPackage class.

---

### Getters:

*Contains player id*

public string playerID

*Contains package data*

public byte[] buffer

## GameCenterMatchData class.

## Getters:

*Match player ids*

```
public List<string> playerIDs
```

## GameCenterPlayerTemplate  class.

## Getters:

*Current player id*

```
public string playerId
```

*Current player name*

```
public string displayName
```

## AchievementTemplate  class.

*Achievement id*

```
public string id;
```

*Achievement progress*

```
public float progress;
```

## LeaderBoardScoreData  class.

*Contains leader boards id*

```
public string leaderBoardId;

Leader board scores in different formats
public string leaderBoardScore;
public float GetFloatScore()
public int GetIntScore()
```

## Initialization

You should call `GameCenterManager.init();` before you start working with GameCenterManager functions.

## Show Leader Board GUI

```
string leaderBoardId =  "your.leaderbord.id.here";

GameCenterManager.showLeaderBoard(leaderBoardId);
```

## Reporting score to Leader Board

```
int hiScore = 100;

string leaderBoardId =  "your.leaderbord.id.here";

GameCenterManager.reportScore(hiScore, leaderBoardId);
```

## Achievements registration

I recommend to register all achievements in GameCenterManager. If you will skip this step GameCenterManager.achievements array will contain only achievements with reported progress.

Here is example of how to register your achievements. You should do this before GameCenterManager.init() call

```
GameCenterManager.registerAchievement (TEST_ACHIEVEMENT_1_ID);

GameCenterManager.registerAchievement (TEST_ACHIEVEMENT_2_ID);
```

## Show achievements GUI

```
GameCenterManager.showAchievements();
```

## Report achievement progress

```
GameCenterManager.submitAchievement(88.66f, TEST_ACHIEVEMENT_2_ID);
```

## Report achievement progress without showing achievement complete message

```
GameCenterManager.submitAchievement(88.66f, TEST_ACHIEVEMENT_2_ID, false);
```

## Game Center Achievements events

GAME_CENTER_ACHIEVEMENTS_LOADED - Will be called after achievements progress will be loaded from IOS Game Center server.

*Example how to listen event:*

```
GameCenterManager.dispatcher.addEventListener
(GameCenterManager.GAME_CENTER_ACHIEVEMENTS_LOADED, OnAchievementsLoaded);
```

```
private void OnAchievementsLoaded() {

        Debug.Log ("Achievemnts was loaded from IOS Game Center");


        foreach(AchievementTemplate tpl in GameCenterManager.achievements) {

            Debug.Log (tpl.id + ":  " + tpl.progres);

        }

    }
```

GAME_CENTER_ACHIEVEMENT_PROGRESS - Will be called after achievement progress has changed.

*Example how to listen event:*

```
GameCenterManager.dispatcher.addEventListener
(GameCenterManager.GAME_CENTER_ACHIEVEMENT_PROGRESS, OnAchievementProgress);


private void OnAchievementProgress(CEvent e) {

        Debug.Log ("OnAchievementProgress");


        AchievementTemplate tpl = e.data as AchievementTemplate;

        Debug.Log (tpl.id + ":  " + tpl.progres);

    }
```

GAME_CENTER_ACHIEVEMENTS_RESET - Will be called when your game resets a progress on achievements.

```
GameCenterManager.dispatcher.addEventListener
(GameCenterManager.GAME_CENTER_ACHIEVEMENTS_RESET, OnAchievementsReset);


private void OnAchievementsReset() {

     Debug.Log ("All  Achievemnts was reseted");

 }
```

# *In-App Purchases*

---

## Classes Documentation

### InAppPurchaseManager  class.

---

*Loads store data, should be used after all products are registred. Use* ***addProductId*** *function to register product before loading store*

public void  loadStore()

*Registers product in store. Use this function before loading store*

public static void  addProductId(string productId)

*Initialize purchase flow by product id. Triggers  PRODUCT_BOUGHT or TRANSACTION_FAILED event*

public static void  buyProduct(string productId)

*Restore all customer purchases. You will get PRODUCT_BOUGHT event for each already bought product.*

public static void restorePurchases()

*Initialize verification request for last purchased product by verification URL. If you are not using your own server, use SANDBOX_VERIFICATION_SERVER url for testing mode and APPLE_VERIFICATION_SERVER url for release mode*

public void verifyLastPurchase(string url)

## Getters:

*List of products*

public List<ProductTemplate> products

## Events:

*Fires when purchase flow is successfully finished.*

*Event data contains IOSStoreKitResponce*

PRODUCT_BOUGHT

*Fires when purchase flow fails.*

*Event data contains IOSStoreKitResponce*

TRANSACTION_FAILED

*Fires on verification server response.*

*Event data contains IOSStoreKitVerificationResponce*

VERIFICATION_RESPONCE

*Fires when achievement's data loaded. Event does not contain any data*

GAME_CENTER_ACHIEVEMENTS_LOADED

## ProductTemplate class.

*product id*

public string id

*product title*

public string title

*product description*

public string description

*product price string*

public string price

*product localized price string*

public string localizedPrice

## IOSStoreKitResponce class.

*product id*

public string productIdentifier;

*transaction recipe*

public float receipt;

*error description*

public string error;

## IOSStoreKitVerificationResponce  class.

*response status*

public string status;

*transaction recipe*

public float receipt;

*original response JSON string, use it if you need additional data. Full response data description can be found here.*

public string originalJSON;

## Transactions Validation

### How can I validate transactions that have already completed?

**Non-consumables:** Set aside the current receipts, perform a restore operation, and validate the new receipts.

To do this have a look on  restorePurchases function of InAppPurchaseManager class

**Consumables:** If you have saved the receipts, either on the device or on your server, revalidate the receipts after implementing your mitigation strategy. If you have not saved the receipts, you cannot validate these past transactions; you should not take any action.

When you got PRODUCT_BOUGHT event from the InAppPurchaseManager class, it contains IOSStoreKitResponse as event data. From IOSStoreKitResponse you can get transaction recipe, send it to your server and validate transaction there.

**Note:** Apple's official recommendation to perform receipt validation is to connect to your own server, which then connects to Apple's servers to validate the receipts.

For a number of reasons, this is more secure than connecting to Apple directly.

If you do not what to use your server you can use apple server for transaction validation.

After you got PRODUCT_BOUGHT event call verifyLastPurchase(string url) function of InAppPurchaseManager class. It will launch verification request. You will get VERIFICATION_RESPONSE when request is complete. Event contains IOSStoreKitVerificationResponse data, with information about transaction from apple server. Learn more here

**Warning**: Use SANDBOX_VERIFICATION_SERVER url (https://sandbox.itunes.apple.com/verifyReceipt) during app testing and APPLE_VERIFICATION_SERVER url (https://sandbox.itunes.apple.com/verifyReceipt) on production.

## In-Apps Initialization

Define your product ids

```
public const string SMALL_PACK     =  "your.in.app.purchase.id1";

public const string NC_PACK     =  "your.in.app.purchase.id2";
```

Put them to the store request:

```
InAppPurchaseManager.instance.addProductId(SMALL_PACK);

InAppPurchaseManager.instance.addProductId(NC_PACK);
```

Listeners:

```
InAppPurchaseManager.instance.addEventListener(InAppPurchaseManager.PRODUCT_B
OUGHT, onProductBought);


InAppPurchaseManager.instance.addEventListener(InAppPurchaseManager.TRANSACTI
ON_FAILED, onTransactionFailed);
```

Load Store Data

```
InAppPurchaseManager.instance.loadStore();
```

onProductBought function example:

```
 private static void onProductBought(CEvent e) {

         string productId = (string) e.data;
         Debug.Log("STORE KIT GOT BUY: " + productId);

         IOSNative.showMessage("Success", "product " + productId + " is
 purchased");
 }
```

onTransactionFailed function example:

```
private static void onTransactionFailed() {
      IOSNative.showMessage("Fail", "Transaction was failed");
}
```

## *iCloud*

## Classes Documentation

### iCloudManager class.

---

*Initialize iCloud. Best practice to call this on app startup. You will recive CLOUD_INITIALIZED or CLOUD_INITIALIZE_FAILED event as result.*

public void init()

*Sets string value for specified key*

public void setString(string key, string val)

*Sets float value for specified key*

public void setFloat(string key, float val)

*Sets bytes data for specified key*

public void setData(string key, byte[] val)

*Retrieves data for specified key. You will get CLOUD_DATA_RECEIVE event as result*

public void requestDataForKey(string key)

### Events:

*Fires on successful iCloud initialization. Event does not contain any data.*

CLOUD_INITIALIZED

*Fires if iCloud initialization failed. Event does not contain any data.*

CLOUD_INITIALIZE_FAILED

*Fires if Cloud data change detected. Event does not contain any data.*

CLOUD_DATA_CHANGED

*Fires when requested cloud data received. Event contains iCloudData class as data*

CLOUD_DATA_RECEIVE

## iCloudData class.

### Getters:

*Data key*

public string key

*String representation of data*

public string stringValue

*Float representation of data*

public string floatValue

*Bytes representation of data*

public string bytesValue

*TRUE if key has empty data*

public string IsEmpty

## *Other features*

## iAd App Network

### iAdBannerController class.

---

*Initialize iAd banner with rect. Should be called once per session. Triggers AD_LOADED, AD_VIEW_LOADED or FAIL_TO_RECEIVE_AD events.*

public void initAndShowBanner (int x, int y, int width, int height)

*Use this function to show banner, if banner was hidden.*

public void showBanner()

*Hides banner, can be used only after AD_LOADED event.*

public void  hideBanner()

### Events:

*Fires when receiving ad is failed.*

FAIL_TO_RECEIVE_AD

*Fires if ad successfully loaded.*

AD_LOADED

*Fires on ad view loaded.*

AD_VIEW_LOADED

*Fires on add view finish*

AD_VIEW_FINISHED

## Local and Push Notifications

You do not need any additional set up to use **local** notification. However **push** notifications requires a lot more set up actions. Please follow instructions to find out how to setup and test push notification using this plugin.

### IOSNotificationController class.

---

*Schedule simple local notification.* ***time*** *- seconds befor notification will be fired.* ***message*** *- notification message.*

*Note: Notification will be fired only if app in background or closed.*

public void ScheduleNotification(int time, string message)

*Register application for receiving push notifications.*

public void RegisterForRemoteNotifications(RemoteNotificationType notificationTypes)

*Shows notification banner with specified title and message.*

public void ShowNotificationBanner (string title, string messgae)

### Events:

*Fires when device tocken for push notification is received. Event contains IOSNotificationDeviceToken as data.*

DEVICE_TOKEN_RECIVED

## IOSNotificationDeviceToken class.

### Getters:

*String representation of device token*

```
public string tokenString
```

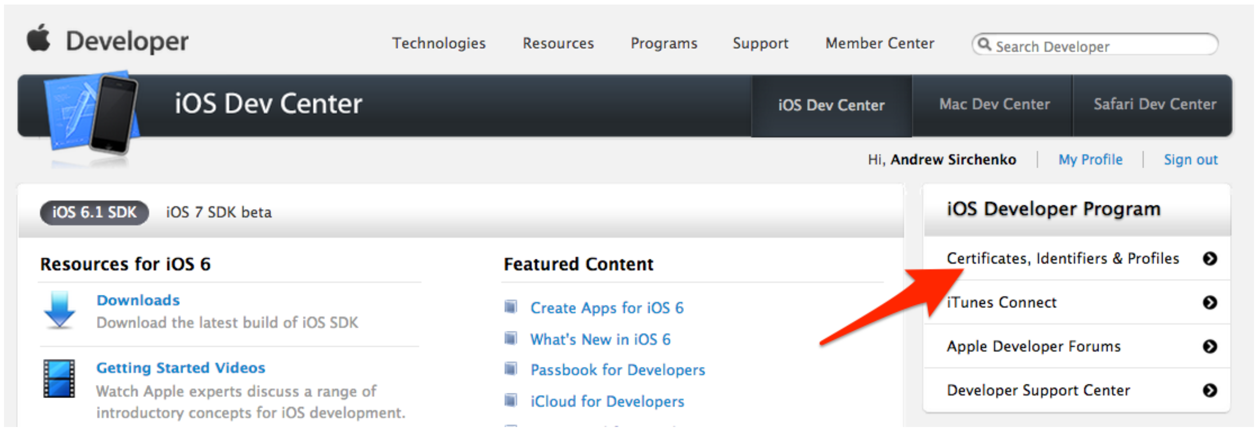
*Byte representation of device token*

```
public byte[] tokenBytes
```

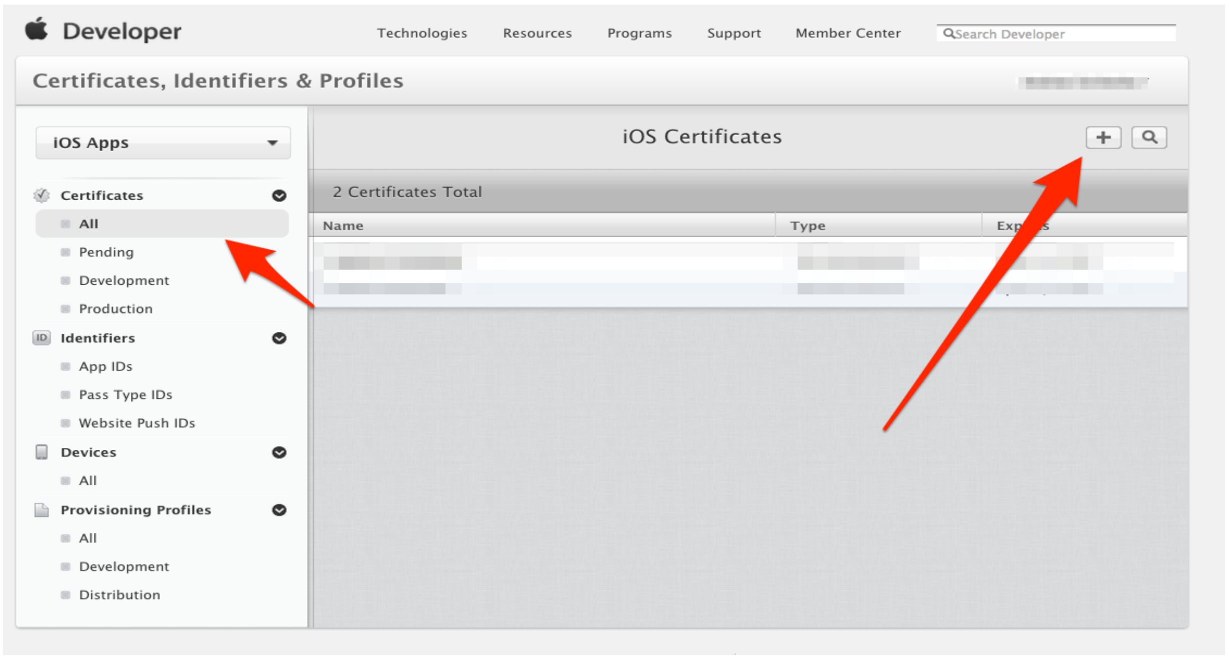
## Creating Certificate and Provocation profile

---

Point your browser to the I[OS Developer](#) website. Login to your developer account and navigate to the provision center.

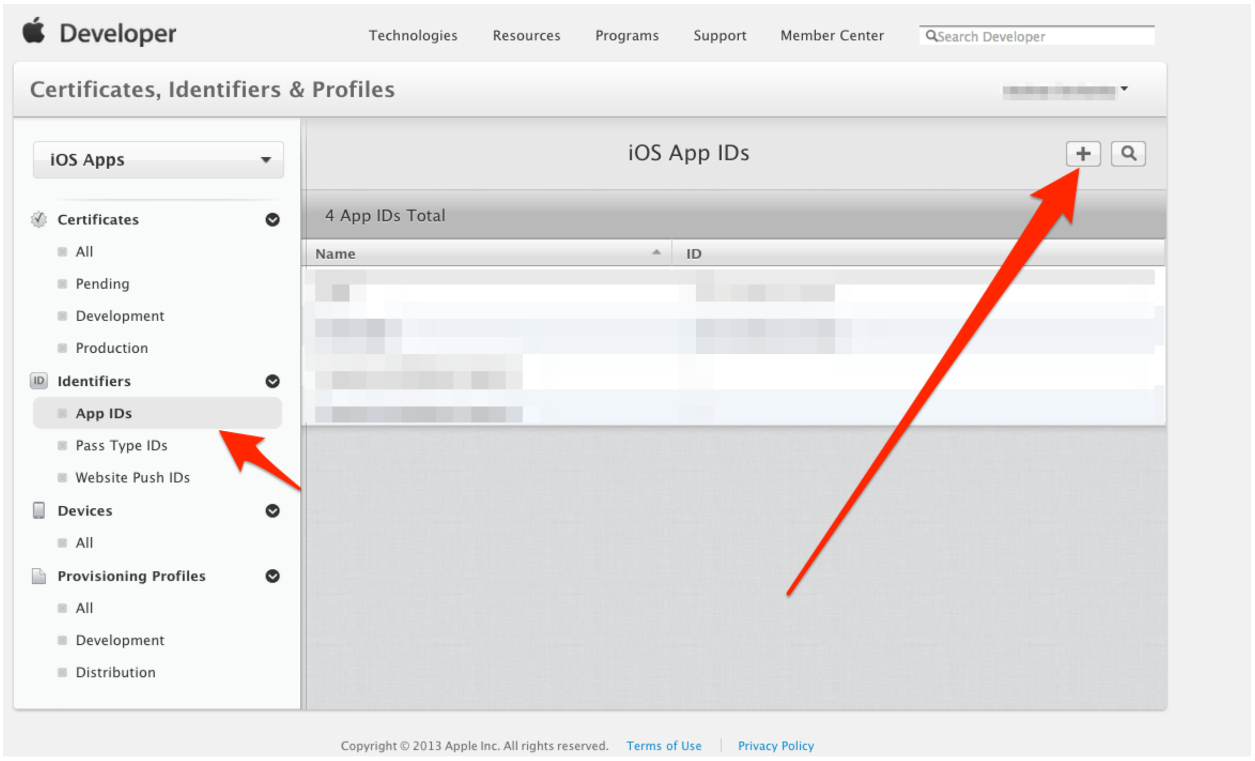


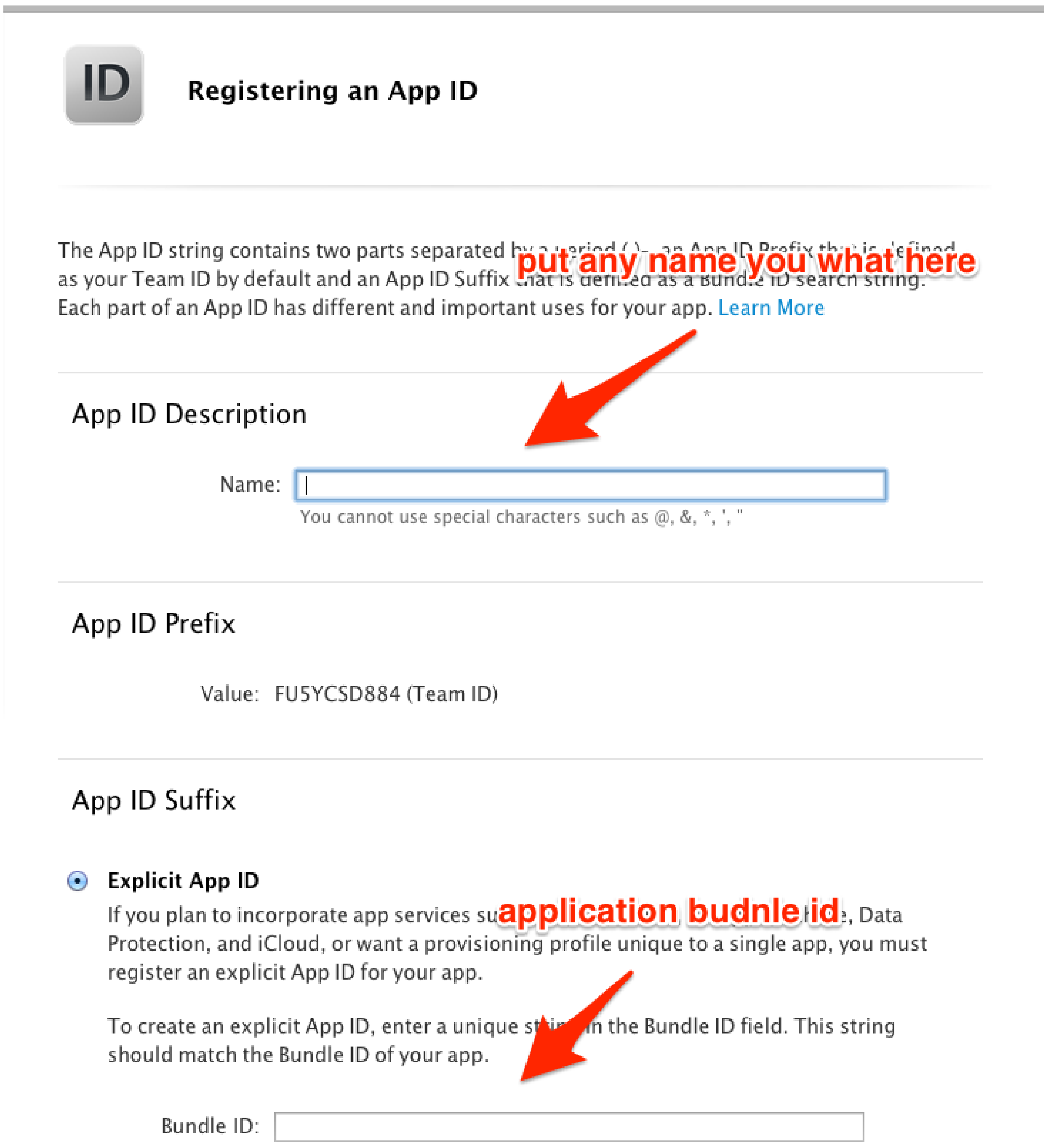
Open certificates tab. If you do not have developer certificate yet, press "+" and follow instructions to create one.



Download and click on downloaded certificate to install it to your keychain.

Next create app id (bundle id) of your application.





Registering an App ID

The App ID string contains two parts separated by a period (.)—an App ID Prefix that is defined as your Team ID by default and an App ID Suffix that is defined as a Bundle ID search string. Each part of an App ID has different and important uses for your app. Learn More

App ID Description

Name:

You cannot use special characters such as @, &, *, ', "

App ID Prefix

Value: FU5YCSD884 (Team ID)

App ID Suffix

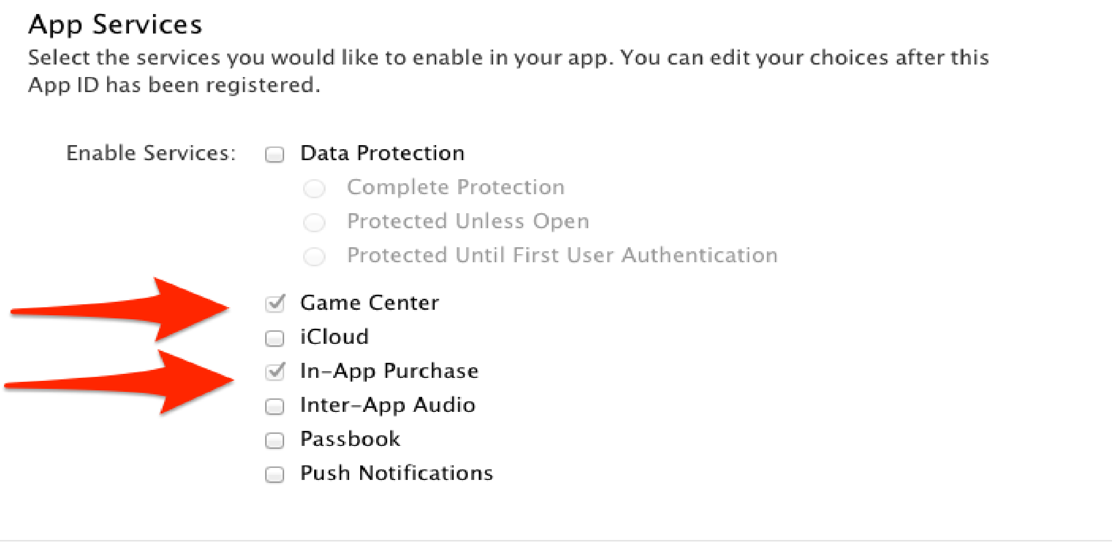
(●) Explicit App ID

If you plan to incorporate app services such as Game Center, In-App Purchase, Data Protection, and iCloud, or want a provisioning profile unique to a single app, you must register an explicit App ID for your app.

To create an explicit App ID, enter a unique string in the Bundle ID field. This string should match the Bundle ID of your app.

Bundle ID:

Make sure that Game Center and In-App purchases are selected.



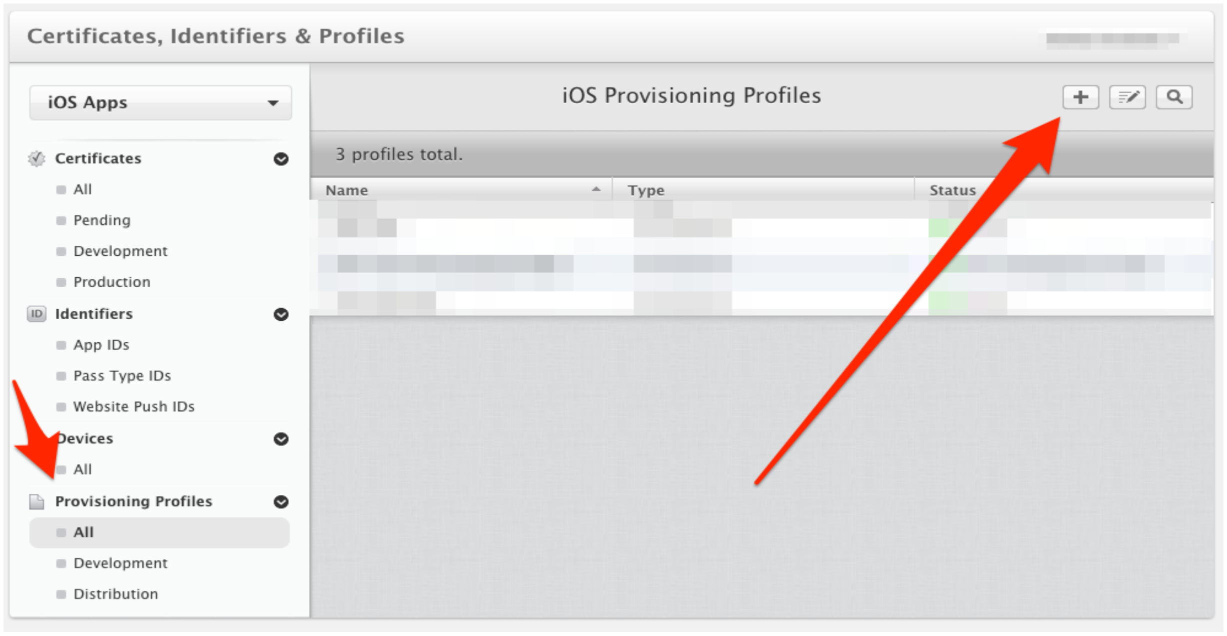
App Services

Select the services you would like to enable in your app. You can edit your choices after this App ID has been registered.

Enable Services:
- [ ] Data Protection
  - ○ Complete Protection
  - ○ Protected Unless Open
  - ○ Protected Until First User Authentication
- [✓] Game Center
- [ ] iCloud
- [✓] In-App Purchase
- [ ] Inter-App Audio
- [ ] Passbook
- [ ] Push Notifications

Go to the Devices tab and register your test devices.

Next switch to the "**Provision Profiles**" and add profile for your game. Download and click on downloaded profile to install it to your keychain.

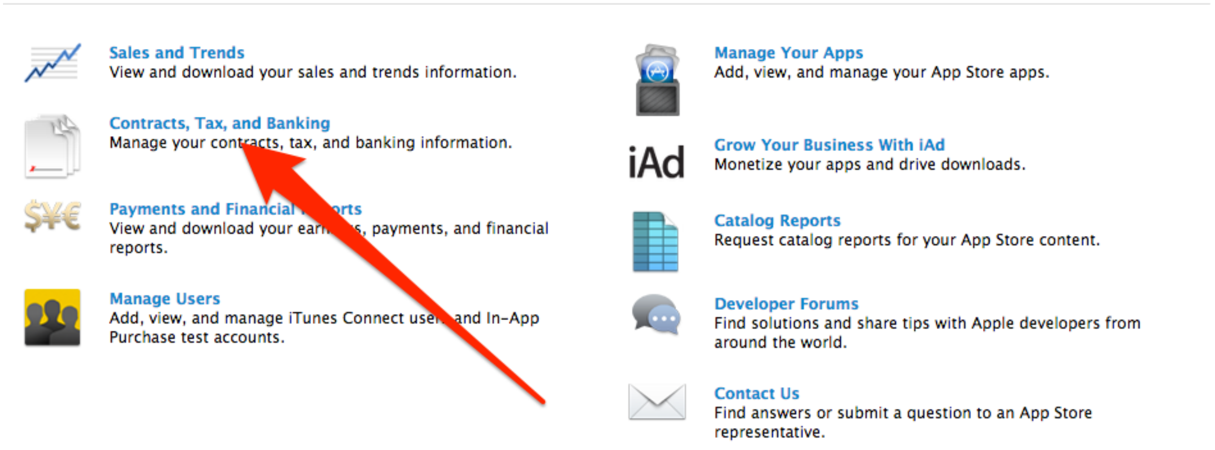


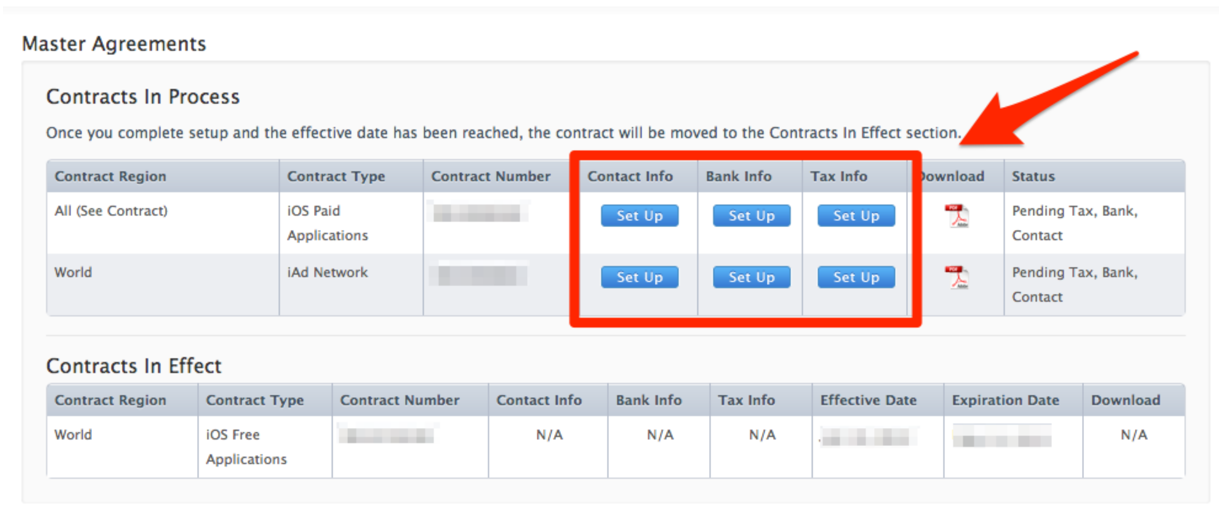
## Creating iTunes app

---

Point your browser to [iTunes Connect]() and login to your developer account.

Select


Sales and Trends
View and download your sales and trends information.
Contracts, Tax, and Banking
Manage your contracts, tax, and banking information.
Payments and Financial Reports
View and download your earnings, payments, and financial reports.
Manage Users
Add, view, and manage iTunes Connect users and In-App Purchase test accounts.
Manage Your Apps
Add, view, and manage your App Store apps.
iAd
Grow Your Business With iAd
Monetize your apps and drive downloads.
Catalog Reports
Request catalog reports for your App Store content.
Developer Forums
Find solutions and share tips with Apple developers from around the world.
Contact Us
Find answers or submit a question to an App Store representative.



Master Agreements

Contracts In Process

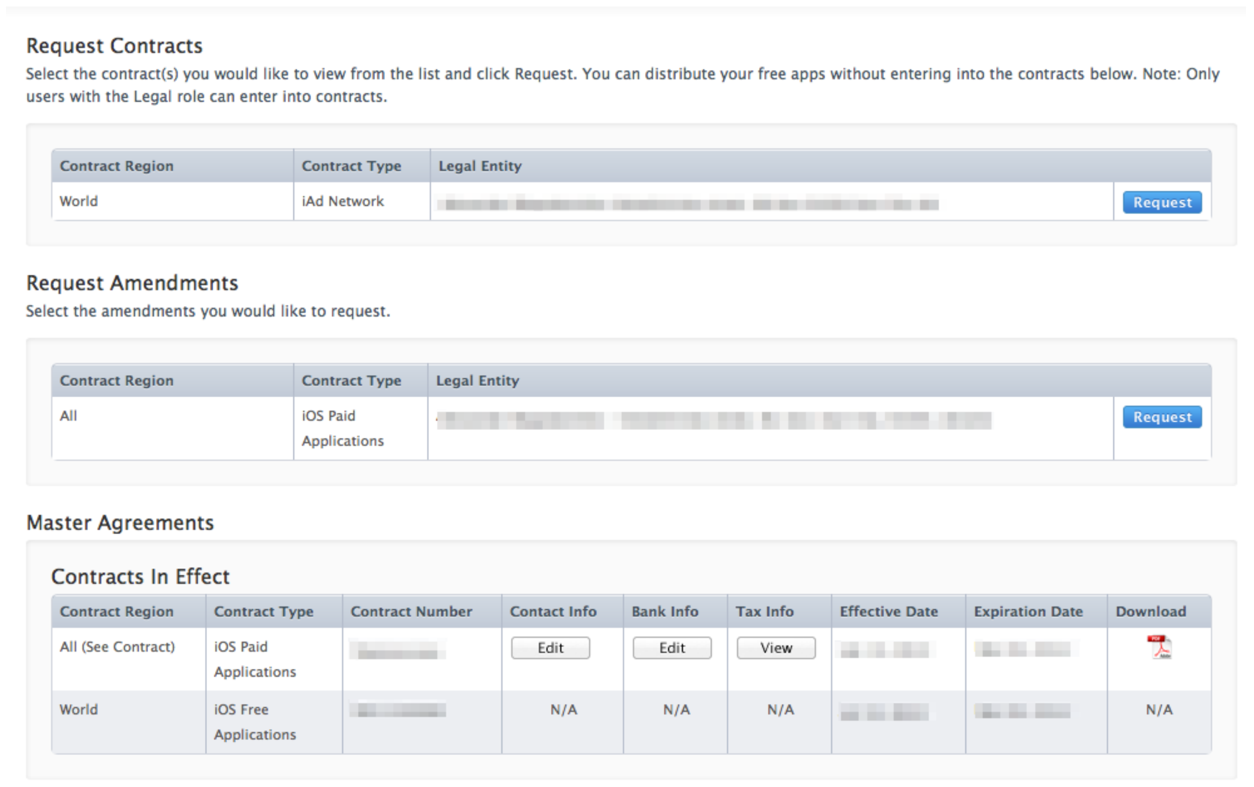
Once you complete setup and the effective date has been reached, the contract will be moved to the Contracts In Effect section.

| Contract Region | Contract Type | Contract Number | Contact Info | Bank Info | Tax Info | Download | Status |
|---|---|---|---|---|---|---|---|
| All (See Contract) | iOS Paid Applications | [redacted] | Set Up | Set Up | Set Up | | Pending Tax, Bank, Contact |
| World | iAd Network | [redacted] | Set Up | Set Up | Set Up | | Pending Tax, Bank, Contact |

Contracts In Effect

| Contract Region | Contract Type | Contract Number | Contact Info | Bank Info | Tax Info | Effective Date | Expiration Date | Download |
|---|---|---|---|---|---|---|---|---|
| World | iOS Free Applications | [redacted] | N/A | N/A | N/A | [redacted] | [redacted] | N/A |

It should look similar to  this when you're done.



### Request Contracts

Select the contract(s) you would like to view from the list and click Request. You can distribute your free apps without entering into the contracts below. Note: Only users with the Legal role can enter into contracts.

| Contract Region | Contract Type | Legal Entity | |
|---|---|---|---|
| World | iAd Network | [redacted] | Request |

### Request Amendments

Select the amendments you would like to request.

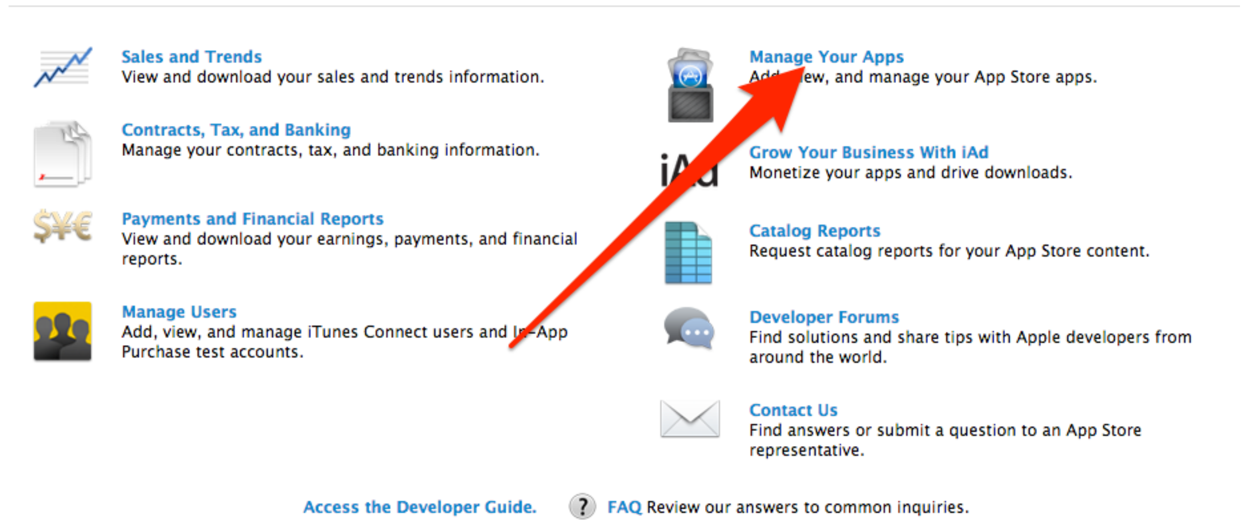
| Contract Region | Contract Type | Legal Entity | |
|---|---|---|---|
| All | iOS Paid Applications | [redacted] | Request |

### Master Agreements

#### Contracts In Effect

| Contract Region | Contract Type | Contract Number | Contact Info | Bank Info | Tax Info | Effective Date | Expiration Date | Download |
|---|---|---|---|---|---|---|---|---|
| All (See Contract) | iOS Paid Applications | [redacted] | Edit | Edit | View | [redacted] | [redacted] | |
| World | iOS Free Applications | [redacted] | N/A | N/A | N/A | [redacted] | [redacted] | N/A |

Go back to the web page. And select “**Manage your apps**”



**Sales and Trends**
View and download your sales and trends information.

**Contracts, Tax, and Banking**
Manage your contracts, tax, and banking information.

**Payments and Financial Reports**
View and download your earnings, payments, and financial reports.

**Manage Users**
Add, view, and manage iTunes Connect users and In-App Purchase test accounts.

**Manage Your Apps**
Add, view, and manage your App Store apps.

**Grow Your Business With iAd**
Monetize your apps and drive downloads.

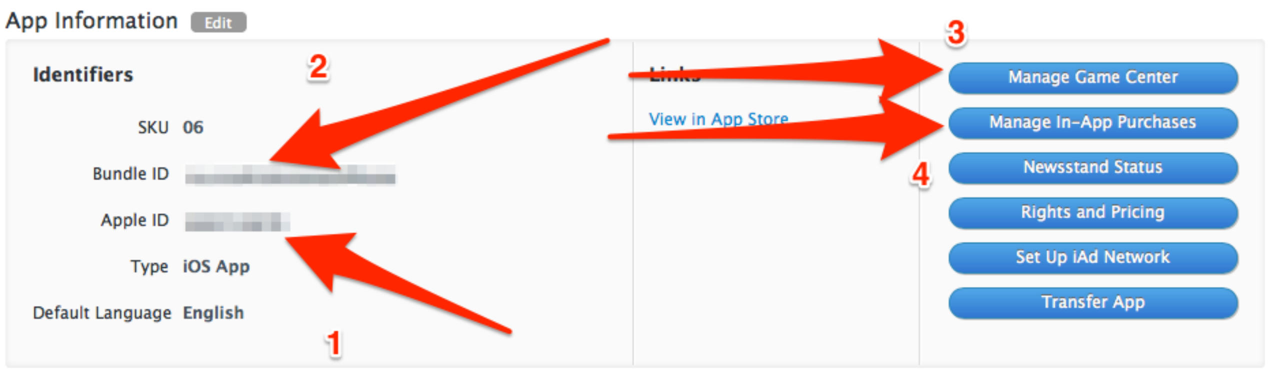
**Catalog Reports**
Request catalog reports for your App Store content.

**Developer Forums**
Find solutions and share tips with Apple developers from around the world.

**Contact Us**
Find answers or submit a question to an App Store representative.

**Access the Developer Guide.** **FAQ** Review our answers to common inquiries.

Create new app, and fill all the required fields. After app is created you can get necessary app info to provide it to the plugin and create In-App purchases and Game Center.



1) Your App id. Required for plugin to work correctly.

2) Your App Bundle ID. Required for plugin to work correctly.

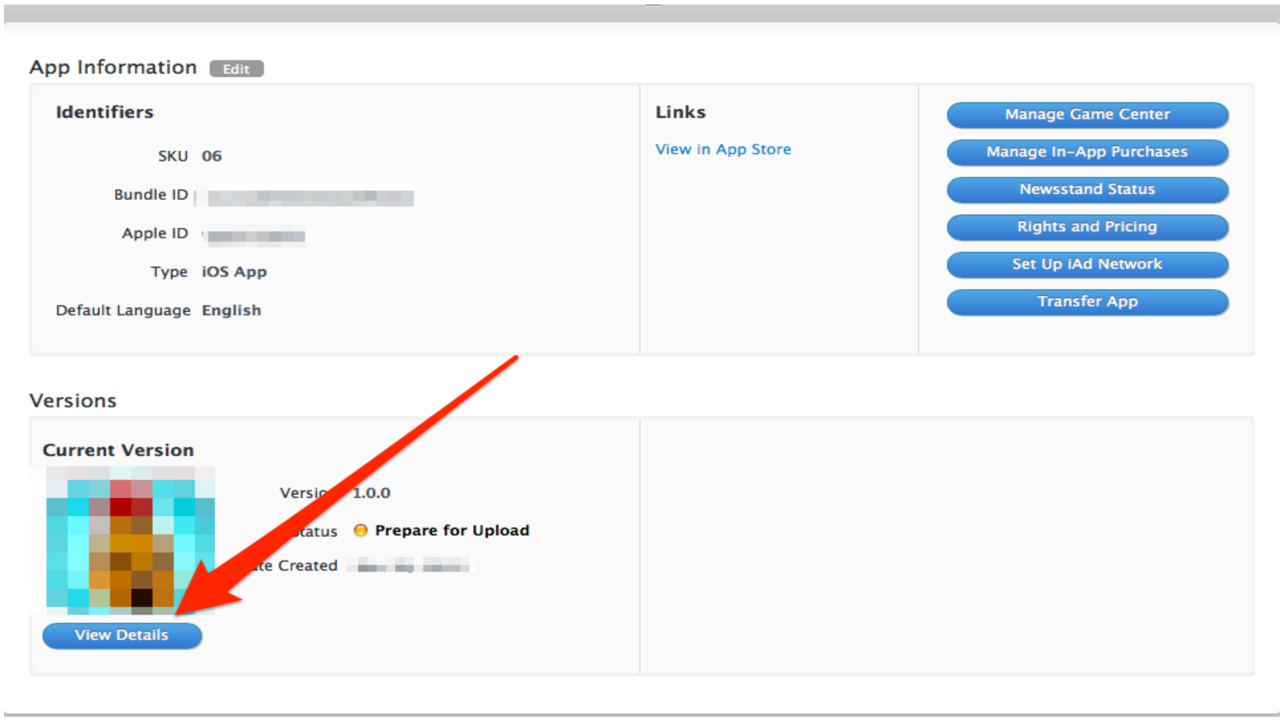
3) Manage Game Center

4) Manage In-App Purchases

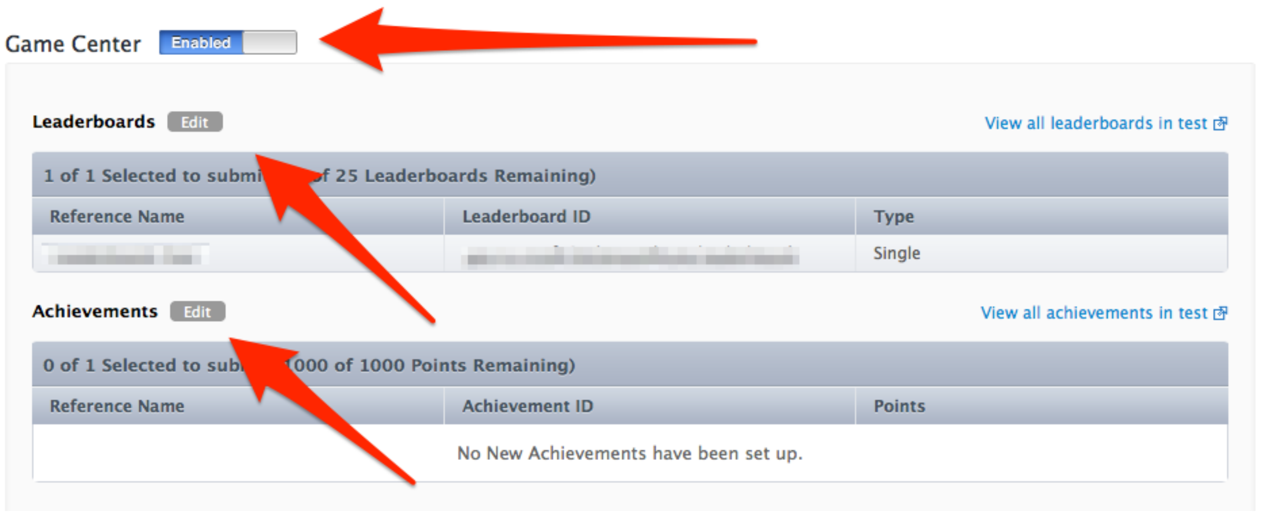
## Manage Game Center

---

Press **Manage Game Center** button and create all necessary leaderboards and achievements for your game.  Then go back to the created app and press **View Details** button.



Enable Game Center support for your game and add leaderboards and achievements you want to test by pressing **Edit** button.


Game Center Enabled

Leaderboards Edit — View all leaderboards in test

1 of 1 Selected to submi… …f 25 Leaderboards Remaining)

| Reference Name | Leaderboard ID | Type |
|---|---|---|
| [redacted] | [redacted] | Single |

Achievements Edit — View all achievements in test

0 of 1 Selected to sub… …000 of 1000 Points Remaining)

| Reference Name | Achievement ID | Points |
|---|---|---|
| | No New Achievements have been set up. | |

## Game Center Coding Guidelines

---

To enable Game Center you should call `GameCenterManager.init();` function on your app start up. You can also call it later if you do not want your user to log in on startup.

This function will start authentication flow. If user is logged out from Game Center hi will see Game Center loging in window. If user logs in successfully you will got GAME_CENTER_PLAYER_AUTHENTICATED event. If authentication flow has been canceled or any other error occurred you will get GAME_CENTER_PLAYER_AUTHENTIFICATION_FAILED.

Note: If you got GAME_CENTER_PLAYER_AUTHENTIFICATION_FAILED it generally means that user does not want to use your app with Game Center. So probably it will be wise to not call `GameCenterManager.init()` function on startup any more, and just notify user that Game Center is disabled. And add button “enable Game Center” for user to be able start using Game Center with your app again.

Note: Every time when your app goes background, and restored from background state, user authentication will be renewed. With means you will again got GAME_CENTER_PLAYER_AUTHENTICATED or GAME_CENTER_PLAYER_AUTHENTIFICATION_FAILED event.

Warning: Do not use any Game Center function until you sure that user is successfully logged in (you will get GAME_CENTER_PLAYER_AUTHENTICATED event as soon it happens)

Warning: If you see pop up window "Game Center is disabled" this means that you trying to use Game Center when user is not authed. And plugin tries to fix this. But if you got it in the first place this mean you trying to call Game Center function before you got GAME_CENTER_PLAYER_AUTHENTICATED event with is wrong.

## Troubleshooting

If you've cancelled game center sign in enough times, the OS disables game center for that game. Prior to iOS7, you could manually sign in again using the game center app, and when you launch your game again it would sign in.

However, in iOS7, it appears that when the OS disables game center for your game, it's completely disabled. I've found that using **Settings > General > Reset > Reset All Settings** will restore game center functionality for games that have been disabled in this manner.

## More Information

Copied answer from here: http://stackoverflow.com/a/19291001/1321401 - a bit different question caused by the same issue.

**This issue appears to happen in sandbox only.**

GameCenter shows prompt for login only a few times (3-5), if all prompts were canceled - GameCenter becomes disabled for this app.

In iOS 7 there is a problem: GameCenter disabled state remains even if you login into the GameCenter app itself - **application will still receive kind of this error:**

```
error: Error Domain=GKErrorDomain Code=2 GkErrorCanceled: the requested
operation has been canceled or disabled by the user
```

There are two workarounds:

First:

1. Log out of Game Center through the Settings app.
2. Reset all settings
3. After the device rebooted, launch app with development build. After launch the GC Login viewController pops up.

Second (this one helped me):

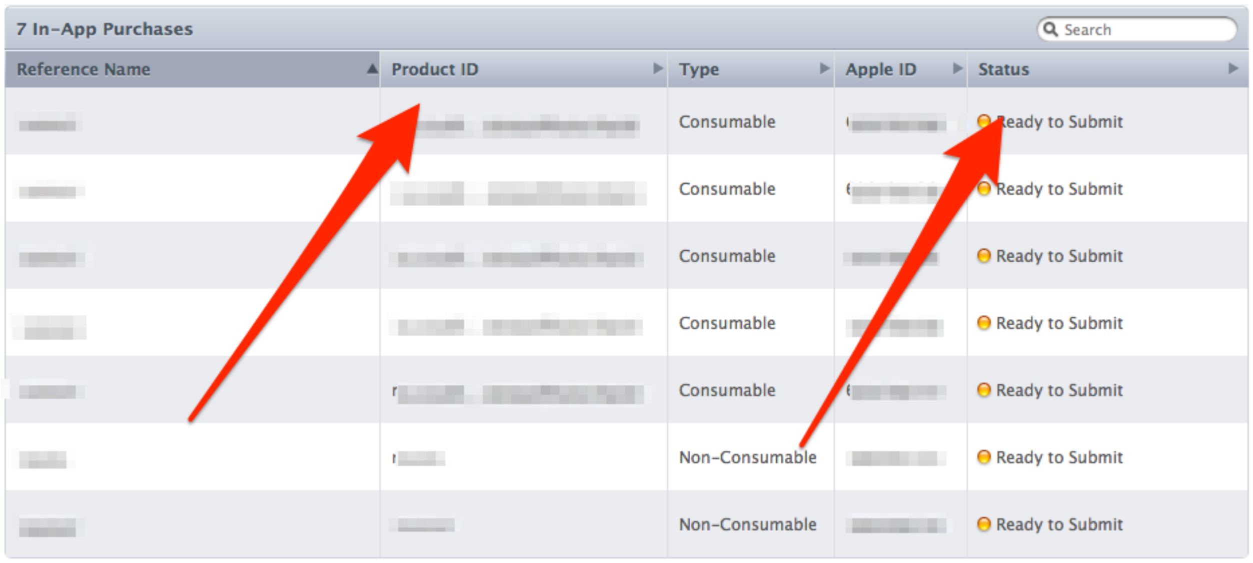
1. "Erase All Content And Settings".
2. Set up as a new device - do not restore from any backups.

Both workarounds are not a viable option for production - I hope there will be a fix from Apple soon.

Most of the info is from to this discussion.

## Manage In-App Purchases

Press **Manage In-App Purchases** and create all necessary products for your app.



7 In-App Purchases

| Reference Name | Product ID | Type | Apple ID | Status |
|---|---|---|---|---|
| [illegible] | [illegible] | Consumable | [illegible] | ● Ready to Submit |
| [illegible] | [illegible] | Consumable | [illegible] | ● Ready to Submit |
| [illegible] | [illegible] | Consumable | [illegible] | ● Ready to Submit |
| [illegible] | [illegible] | Consumable | [illegible] | ● Ready to Submit |
| [illegible] | [illegible] | Consumable | [illegible] | ● Ready to Submit |
| [illegible] | [illegible] | Non-Consumable | [illegible] | ● Ready to Submit |
| [illegible] | [illegible] | Non-Consumable | [illegible] | ● Ready to Submit |

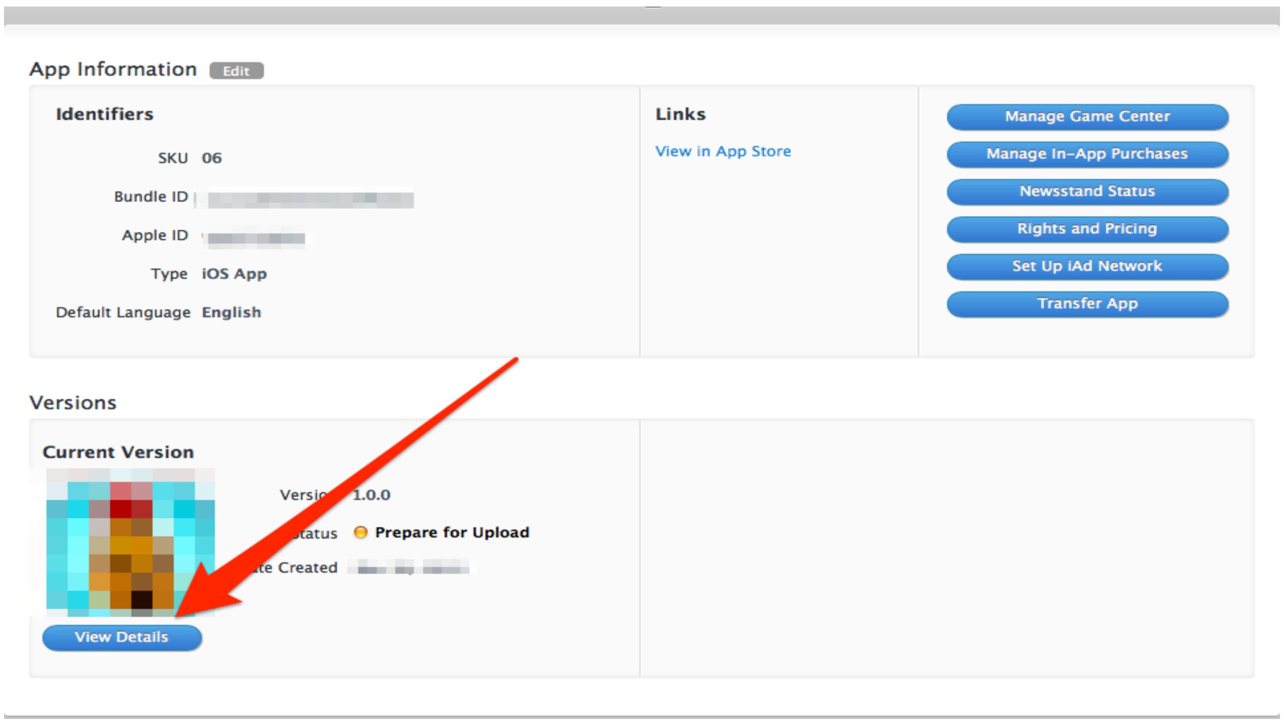
You will have similar table of in-apps when you finish creating your products.

Make sure that you have uploaded screenshot for each in-app product, and all of them has **Ready to Submit** status.

Product ID column displace id of your product. You will manage your products in code by this ids.

Not enough just create products, you also have to add them to your app.

Go back to the created app and press **View Details** button.


App Information Edit

**Identifiers**

| | |
|---|---|
| SKU | 06 |
| Bundle ID | |
| Apple ID | |
| Type | iOS App |
| Default Language | English |

**Links**

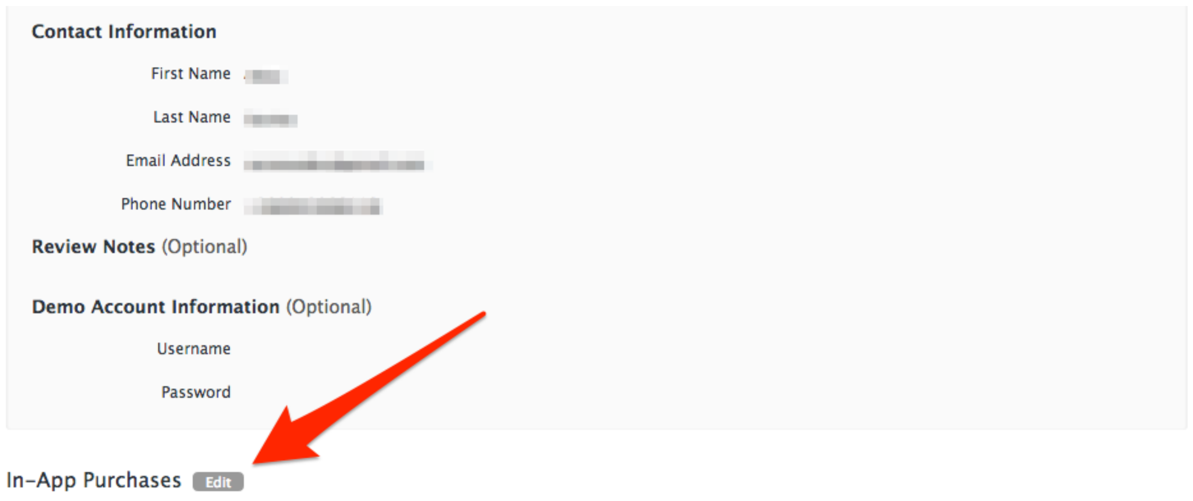
View in App Store

Versions

**Current Version**

| | |
|---|---|
| Version | 1.0.0 |
| Status | Prepare for Upload |
| Date Created | |

Press **Edit** button near In-App Purchases


**Contact Information**

| | |
|---|---|
| First Name | |
| Last Name | |
| Email Address | |
| Phone Number | |

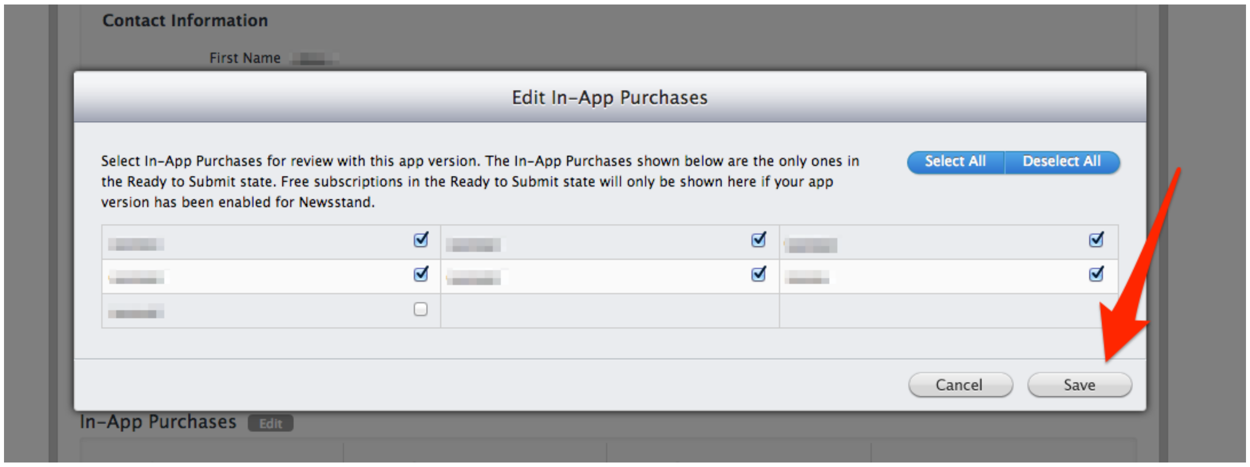
**Review Notes** (Optional)

**Demo Account Information** (Optional)

| | |
|---|---|
| Username | |
| Password | |

In-App Purchases Edit

Select all products you want to be used with your app, and press **Save** button.


Contact Information

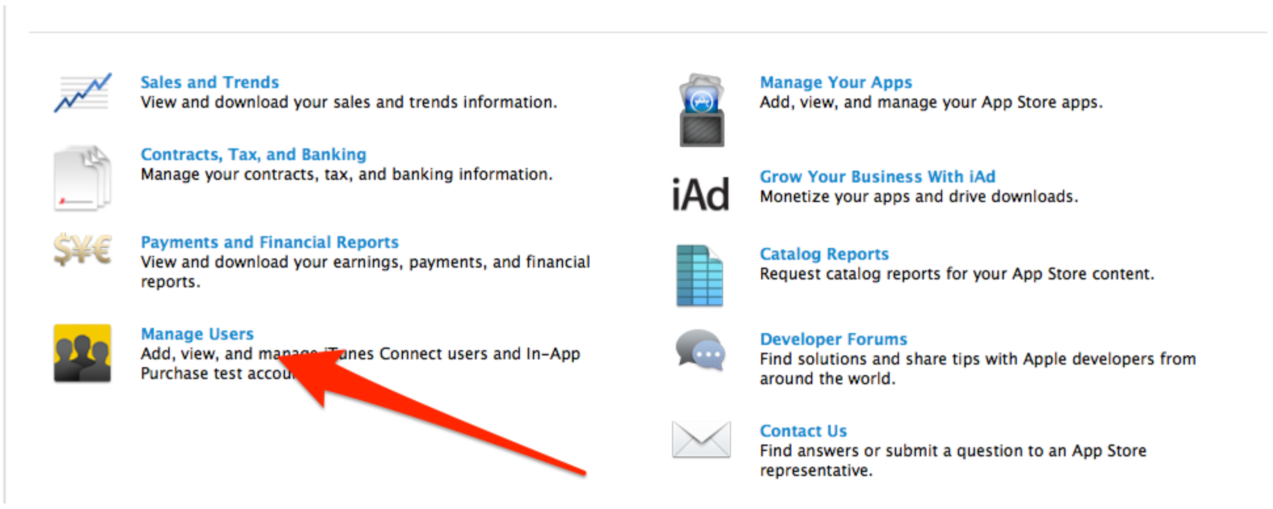
First Name

Edit In-App Purchases

Select In-App Purchases for review with this app version. The In-App Purchases shown below are the only ones in the Ready to Submit state. Free subscriptions in the Ready to Submit state will only be shown here if your app version has been enabled for Newsstand.

To be able to Test In-Apps you have to create test account and log out from your real account on your device.

Go back to the ITunes Connect main page. Then Manage Users → Test User. Fill all required fields and create new test user.


**Sales and Trends**
View and download your sales and trends information.

**Contracts, Tax, and Banking**
Manage your contracts, tax, and banking information.

**Payments and Financial Reports**
View and download your earnings, payments, and financial reports.

**Manage Users**
Add, view, and manage iTunes Connect users and In-App Purchase test accou

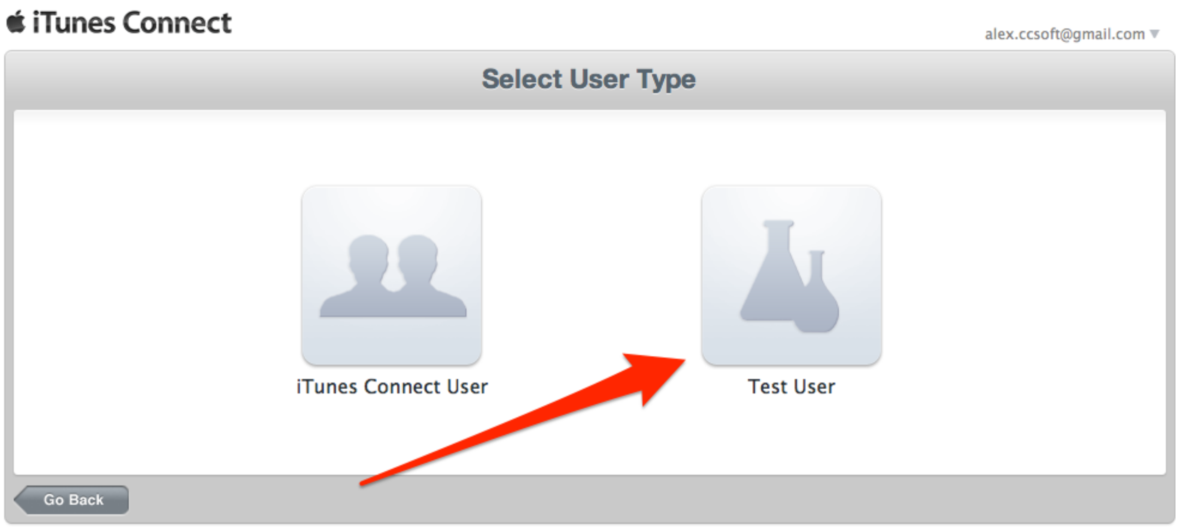
**Manage Your Apps**
Add, view, and manage your App Store apps.

**Grow Your Business With iAd**
Monetize your apps and drive downloads.

**Catalog Reports**
Request catalog reports for your App Store content.

**Developer Forums**
Find solutions and share tips with Apple developers from around the world.

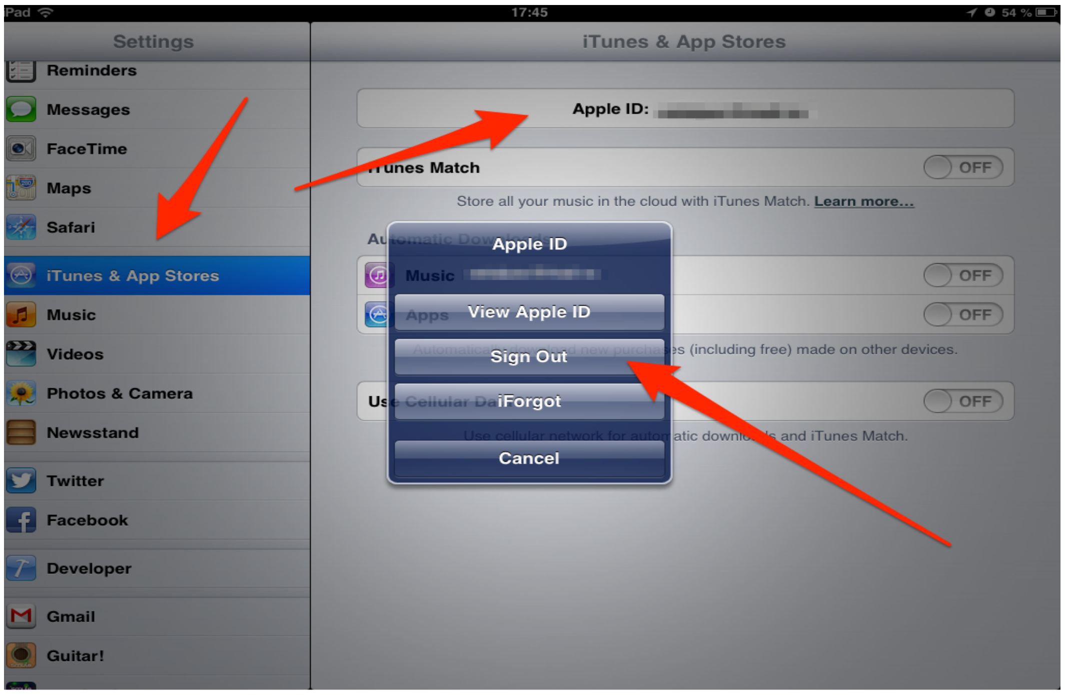
**Contact Us**
Find answers or submit a question to an App Store representative.



Make sure that you sign out from your real account before testing in-apps on device.

To do that open device settings, select iTunes & App Store, tab on your account and press Sign Out button.

**Warning:** Do not try to sign in as test user. Use your test user id and pass when your game ask for it.



## In-App Purchases Coding Guidelines

---

Take a look on **PaymnetManagerExample** class. This is example of game payment manager you should create one for your game or modify this example to make it perfect fit for your game.

Take a look at **init** function. It should be called before your game starts

```
public static void init() {
	//adding your game products id's
	InAppPurchaseManager.instance.addProductId(SMALL_PACK);
	InAppPurchaseManager.instance.addProductId(NC_PACK);
	//signing on InAppPurchaseManager events
	InAppPurchaseManager.instance.addEventListener(InAppPurchaseManager.PRODUCT_BOUGHT,
onProductBought);
	InAppPurchaseManager.instance.addEventListener(InAppPurchaseManager.TRANSACTION_FAILED,
onTransactionFailed);
	InAppPurchaseManager.instance.addEventListener(InAppPurchaseManager.VERIFICATION_RESPONCE,
onVerificationResponce);
	InAppPurchaseManager.instance.loadStore();
}
```

In init function you should register your products, add listeners for events you need (at least `PRODUCT_BOUGHT` events)

And then using `InAppPurchaseManager.instance.loadStore();` function send load store request to apple.

`InAppPurchaseManager.instance.loadStore();` function  will trigger STORE_KIT_INITIALIZED event. You should wait for this event before calling other methods of `InAppPurchaseManager` class. As soon as you got it, you can be sure that store kit fully initialized and ready to work.

Here is buyItem function of PaymnetManagerExample

```
public static void buyItem(string productId) {
	InAppPurchaseManager.instance.buyProduct(productId);
}
```

It's really simple, it just receive productId (SKU) and starts purchase flow using method. But you can add some code like:

- Check is store kit initialized
- Probably suggest something to your customer before purchase
- Fade screen, draw preloader or pause the game util customer purchasing your stuff.

```
private static void onProductBought(CEvent e) {
	IOSStoreKitResponce responce =  e.data as IOSStoreKitResponce;
	Debug.Log("STORE KIT GOT BUY: " + responce.productIdentifier);
	Debug.Log("RECIPT: " + responce.receipt);

	switch(responce.productIdentifier) {
	case SMALL_PACK:
	  //code for adding small game money amount here
	  break;
	case NC_PACK:
	  //code for unlocking cool item here
	  break;

	}
	IOSNative.showMessage("Success", "product " + responce.productIdentifier + " is purchased");
  }
```

This function demonstrate with data you will get when customer has bought the product. You can use switch or any other methods (Unlocker class for example) to unlock content for your customers or increasing customer balance with your game currency.

Sure you can remove all logs form this function, and add some screen unlock code, if screen was locked in buyItem method.

```
private static void OnTransactionFailed(CEvent e) {
    IOSStoreKitResponce responce =  e.data as IOSStoreKitResponce;
    IOSNative.showMessage("Fail", responce.error);
}
```

We were signed for TRANSACTION_FAILED event, so OnTransactionFailed function will be perfect fit to notify your user that something was wrong and ask him to try later, and add some screen unlock code, if screen was locked in buyItem method.

Note: If you will call restorePurchases You will get PRODUCT_BOUGHT event for each already bought product. Sou you do not have to implement any other additional logic for purchases restoring. But you should be ready that when you call restorePurchases methods, you can get bunch of PRODUCT_BOUGHT events.

## iCloud SetUP

From the user’s perspective, iCloud is a simple feature that automatically makes their personal content available on all their devices. To make your app participate in this "magic," you need to design and implement your app somewhat differently, and for this you need to learn about your app's roles when it participates with iCloud.

These roles, and the specifics of your iCloud adoption process, depend on your app. You design how your app manages its data, so only you can decide which iCloud supporting technologies your app needs and which ones it does not.

This chapter gets you started with the fundamental elements of iCloud that all developers need to know.

### *First, Provision Your Development Devices*

To start developing an iCloud app, you must have an appropriate device provisioning profile and app ID. If you don't already have these in place, learn about setting up a provisioning profile and app ID in "Provisioning Your App for Store Technologies" in *App Distribution Guide*.

### *iCloud Data Transfer Proceeds Automatically and Securely*

When you adopt iCloud, the operating system initiates and manages uploading and downloading of data for the devices attached to an iCloud account. Your app does not directly communicate with iCloud servers and, in most cases, does not invoke upload or download of data. At a very high level, the process works as follows:

1. You configure your app to gain access to special local file system locations known as *ubiquity containers*.
2. You design your app to respond appropriately to changes in the availability of iCloud (such as if a user signs out of iCloud), and to changes in the locations

of files (because instances of your app on other devices can rename, move, duplicate, or delete files).

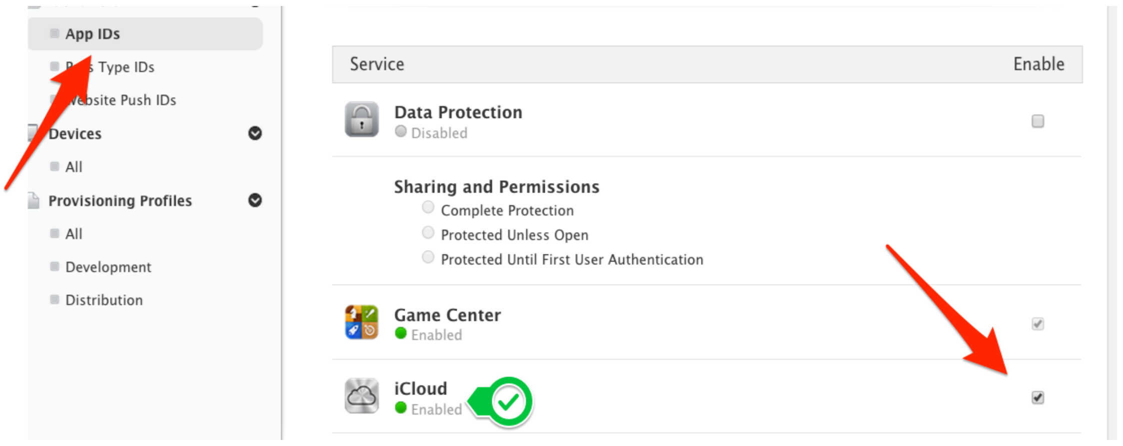
3. Your app reads and writes to its ubiquity containers using APIs that provide file coordination, as explained in “How iCloud Document Storage Works.”
4. The operating system automatically transfers data to and from iCloud as needed.

In iOS, there is an exception to automatic iCloud data transfer. For the first-time download of an iCloud-based document in iOS, your app actively requests the document. You learn about this process in “How iCloud Document Storage Works.”

iCloud secures user data with encryption in transit and on the iCloud servers, and by using secure tokens for authentication. For details, refer to iCloud security and privacy overview. Key-value storage employs the same security as iCloud uses for "Documents in the Cloud,” as it is described in that document.

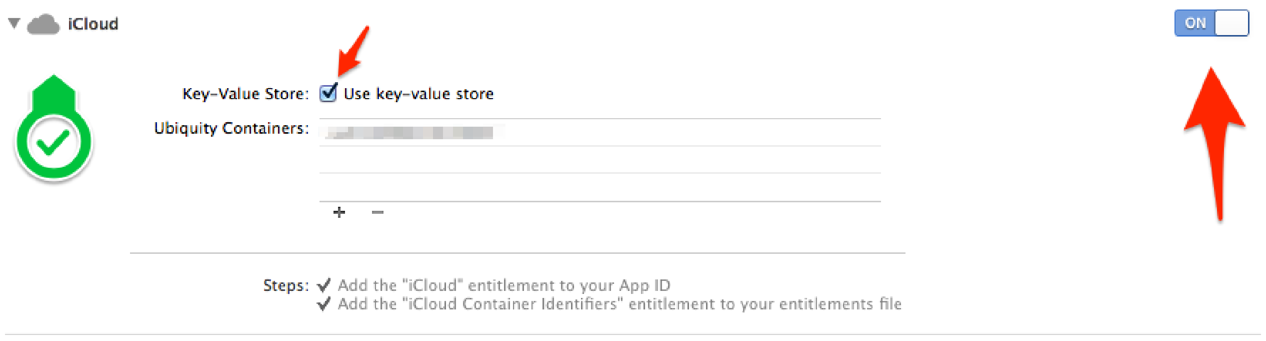
### *Set Up Steps.*

1) Enable iCloud for your app id



| Service | Enable |
|---|---|
| Data Protection<br>Disabled | ☐ |
| Sharing and Permissions<br>○ Complete Protection<br>○ Protected Unless Open<br>○ Protected Until First User Authentication | |
| Game Center<br>Enabled | ✓ |
| iCloud<br>Enabled | ✓ |

2) Enable iCloud inside XCode project



iCloud

ON

Key-Value Store: ✓ Use key-value store

Ubiquity Containers: [redacted]

Steps: ✓ Add the "iCloud" entitlement to your App ID
✓ Add the "iCloud Container Identifiers" entitlement to your entitlements file

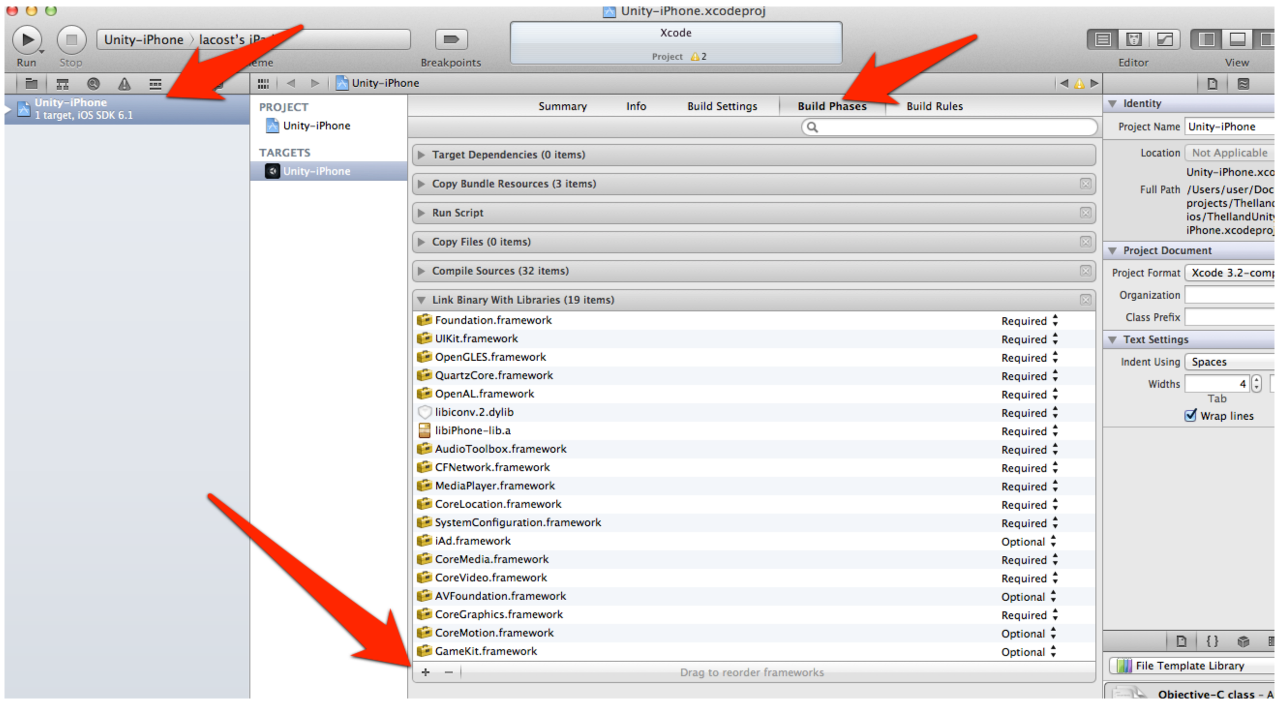
## Plugin Setup

---

You should include ***storeKit.framework*** plugin to your generated IOS project.

Here is instruction how to do that.

Open your project. Click on The Solution Name (project setting will open). Click on "**Build Phase Tab**", C



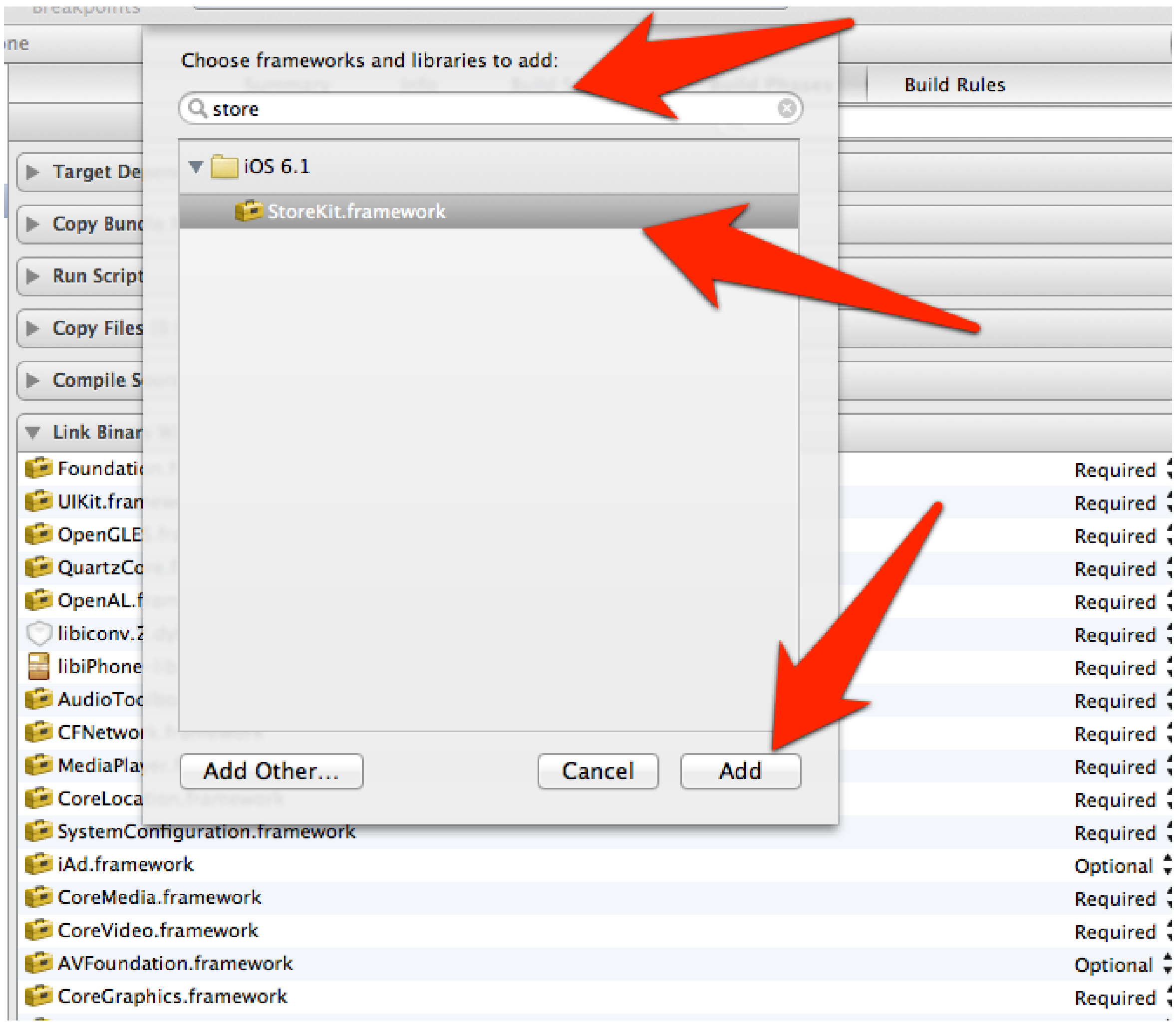
Target Dependencies (0 items)
Copy Bundle Resources (3 items)
Run Script
Copy Files (0 items)
Compile Sources (32 items)
Link Binary With Libraries (19 items)

| | |
|---|---|
| Foundation.framework | Required |
| UIKit.framework | Required |
| OpenGLES.framework | Required |
| QuartzCore.framework | Required |
| OpenAL.framework | Required |
| libiconv.2.dylib | Required |
| libiPhone-lib.a | Required |
| AudioToolbox.framework | Required |
| CFNetwork.framework | Required |
| MediaPlayer.framework | Required |
| CoreLocation.framework | Required |
| SystemConfiguration.framework | Required |
| iAd.framework | Optional |
| CoreMedia.framework | Required |
| CoreVideo.framework | Required |
| AVFoundation.framework | Optional |
| CoreGraphics.framework | Required |
| CoreMotion.framework | Optional |
| GameKit.framework | Optional |

Identity
Project Name: Unity-iPhone
Location: Not Applicable
Project Document
Project Format: Xcode 3.2-comp
Text Settings
Indent Using: Spaces
Widths: 4
Wrap lines ✓

click on "**+**" button on "Link Binary".

Write "store" on pop up search field. Choose Storekit framework, And press Add button. That's it.



Choose frameworks and libraries to add:

store

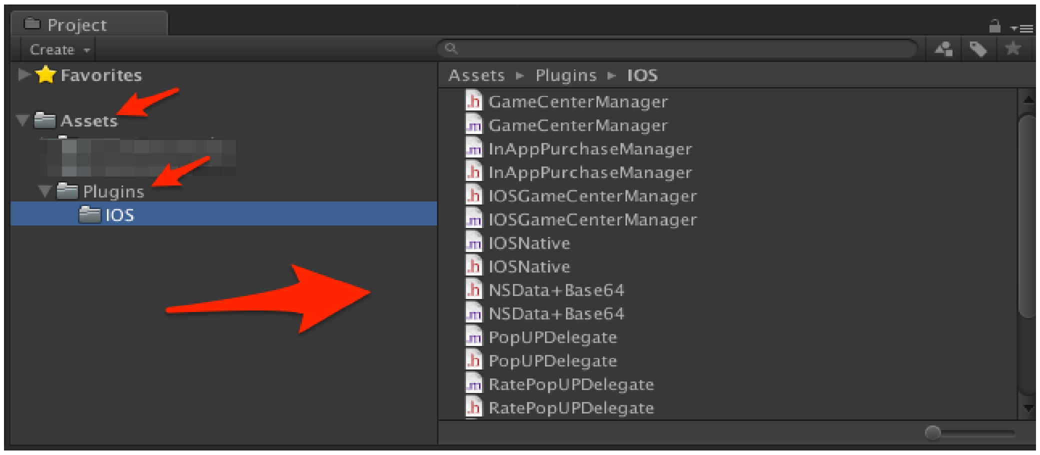
iOS 6.1

StoreKit.framework

| | |
|---|---|
| Foundati | Required |
| UIKit.fran | Required |
| OpenGLE | Required |
| QuartzCo | Required |
| OpenAL.f | Required |
| libiconv.2 | Required |
| libiPhone | Required |
| AudioToc | Required |
| CFNetwo | Required |
| MediaPlay | Required |
| CoreLoca | Required |
| SystemConfiguration.framework | Required |
| iAd.framework | Optional |
| CoreMedia.framework | Required |
| CoreVideo.framework | Required |
| AVFoundation.framework | Optional |
| CoreGraphics.framework | Required |

You need to make sure that extension “**Plugins**” folder is in your “**Asset”** folder. This is required as described in the Unity3D documentation “All files with extensions **.a**,**.m**,**.mm**,**.c**,**.cpp** located in the Assets/**Plugins/iOS** folder will be merged into the generated Xcode project ”

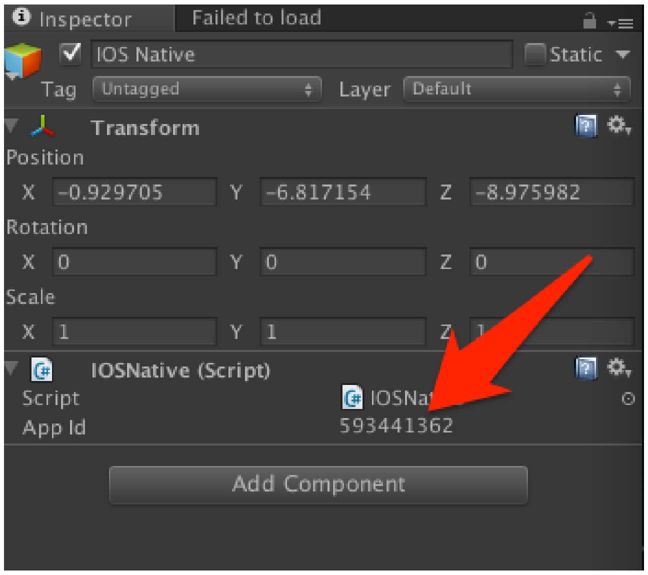
http://docs.unity3d.com/Documentation/Manual/PluginsForIOS.html



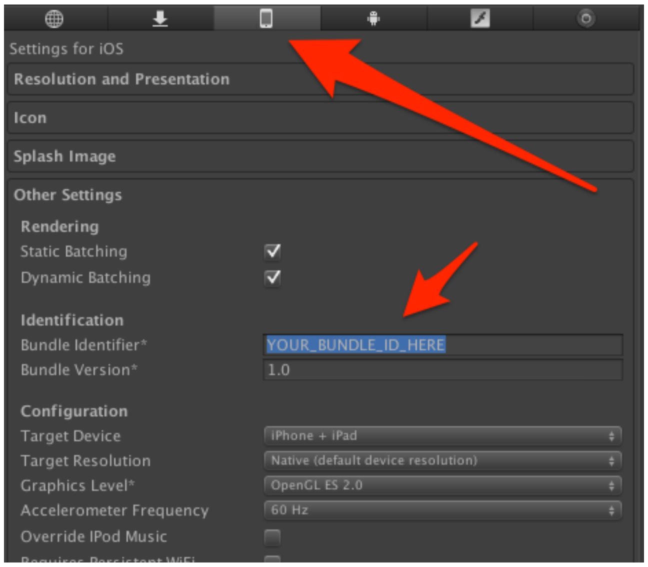
Assets ▸ Plugins ▸ IOS

GameCenterManager
GameCenterManager
InAppPurchaseManager
InAppPurchaseManager
IOSGameCenterManager
IOSGameCenterManager
IOSNative
IOSNative
NSData+Base64
NSData+Base64
PopUPDelegate
PopUPDelegate
RatePopUPDelegate
RatePopUPDelegate

For correct plugin work you should provide all necessary information. Itunes app should be set-uped,  bundle id should be correct. You need to set app Id to IOSNative script before using functions of GameCenter on In-Apps. To do that simple add IOSNative script to empty gameobject and fill **App Id** property.



IOS Native
Tag Untagged Layer Default
Transform
Position
X -0.929705 Y -6.817154 Z -8.975982
Rotation
X 0 Y 0 Z 0
Scale
X 1 Y 1 Z 1
IOSNative (Script)
Script IOSNa
App Id 593441362



Rendering
Static Batching ✓
Dynamic Batching ✓
Identification
Bundle Identifier* YOUR_BUNDLE_ID_HERE
Bundle Version* 1.0
Configuration
Target Device iPhone + iPad
Target Resolution Native (default device resolution)
Graphics Level* OpenGL ES 2.0
Accelerometer Frequency 60 Hz
Override IPod Music

If you not sure where to get App ID and Bundle ID, please follow I[OS App Creation Guide].

## Support

If you have any questions, problems or suggestions, please contact me anytime via E-mail: lacost.st@gmail.com.

Please note that e-mail is the  fastest way to get help.