



# GEFORCE NOW SDK

## INTEGRATOR PRIMER | June 2020

# INTRODUCING THE GEFORCE NOW SDK

THE PATH TO CLOUD GAMING

The GeForce NOW SDK is a set of **APIs, components, and tools** that enable developers to seamlessly add the power of **cloud gaming** to their ecosystem.

# STREAM GAMES DIRECTLY FROM YOUR LAUNCHER

## EXAMPLE EXPERIENCE

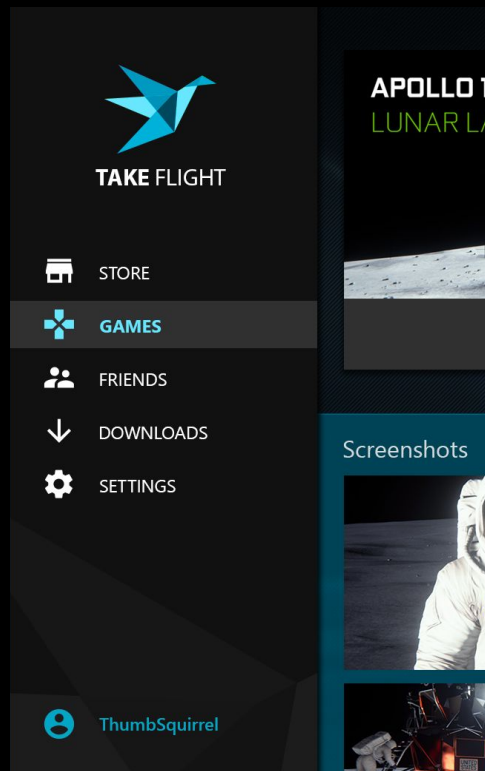
Log In

ThumbSquirrel

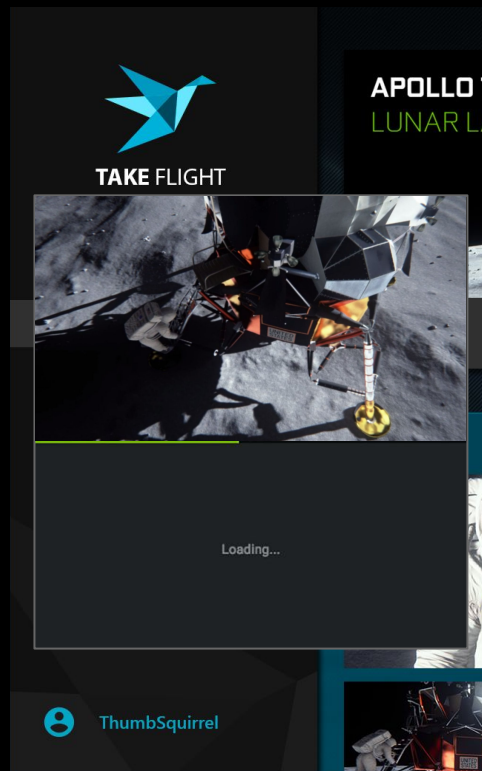
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SIGN IN

Single Sign-On  
w/ Linked Accounts



Seamless  
Integration



Launch  
In Seconds



Premium Experience  
Everywhere

# THE POWER OF GEFORCE NOW

## APIS AND BENEFITS

PUBLISHER

LAUNCHER / STORE

GAME

SDK APIs

AUTHENTICATE & LAUNCH

UPDATES

DEBUG &  
LOGGING

GEFORCE NOW



Single  
Sign-On



Play Without  
Installing



Launch In  
Seconds



Premium GFX  
Anywhere



Always  
Up-To-Date



Robust  
Gaming

# TOPICS COVERED

## BY TARGET AUDIENCE

This document provides a high-level overview of user and developer **benefits** along with integration **flows**, **interfaces** and **processes** required to stream.

### LAUNCHER INTEGRATION

This topic covers the details needed by User Experience Designers and Developers alike to integrate the GeForce NOW SDK into an existing launcher app.

An example launcher is shown.

### ACCOUNT LINKING

This topic covers linking third-party accounts with a user's GeForce NOW account to implement Single Sign-On.

Understanding Identity Management is key for Developers.

### MANAGING BUILDS

This topic covers how builds are uploaded, staged, and published for streaming on GeForce NOW.

This topic is for Quality Assurance and Release Management folks.

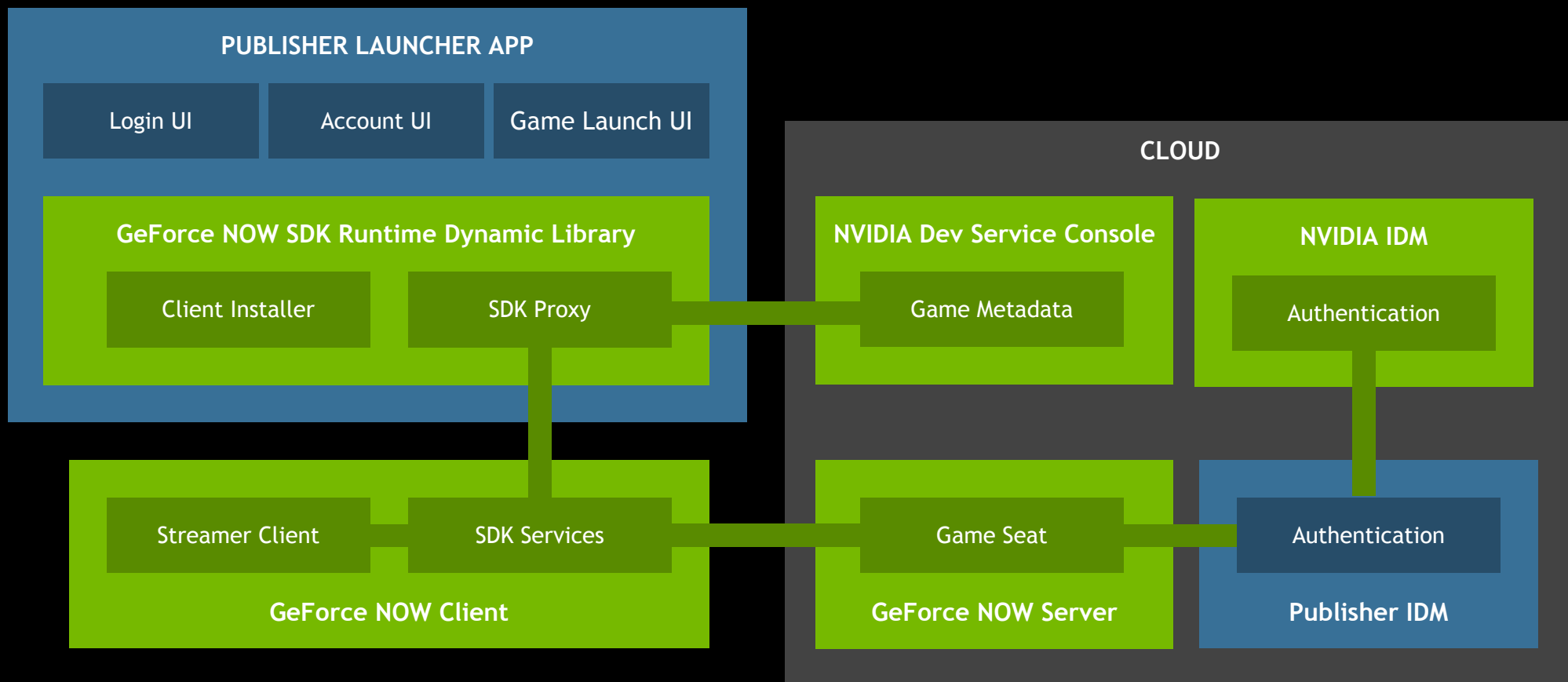


# LAUNCHER INTEGRATION

## ADDING CLOUD GAMING

# ECOSYSTEM

## COMPONENTS AND CONNECTIONS





# EXAMPLE LAUNCHER

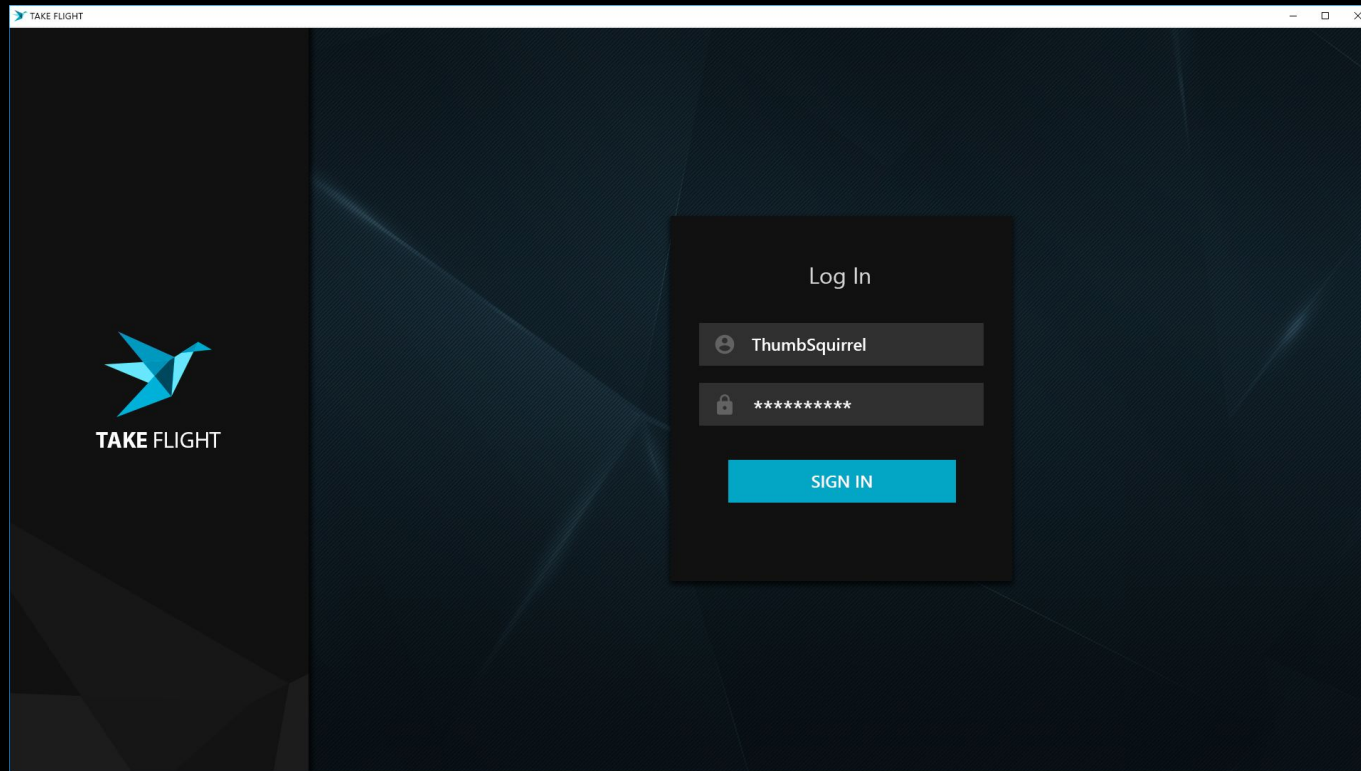
## USER AUTHENTICATION

### LOGIN DIALOG

Sign on to the system is handled by the launcher application itself which gives the gamer access to the ecosystem provided by the publisher.

Signing on to the system automatically restores connections to any third-party linked accounts, including the gamer's NVIDIA GeForce NOW account.

Gamers link third-party accounts by opening the Settings page.





# EXAMPLE LAUNCHER

## THIRD-PARTY ACCOUNT LINKING

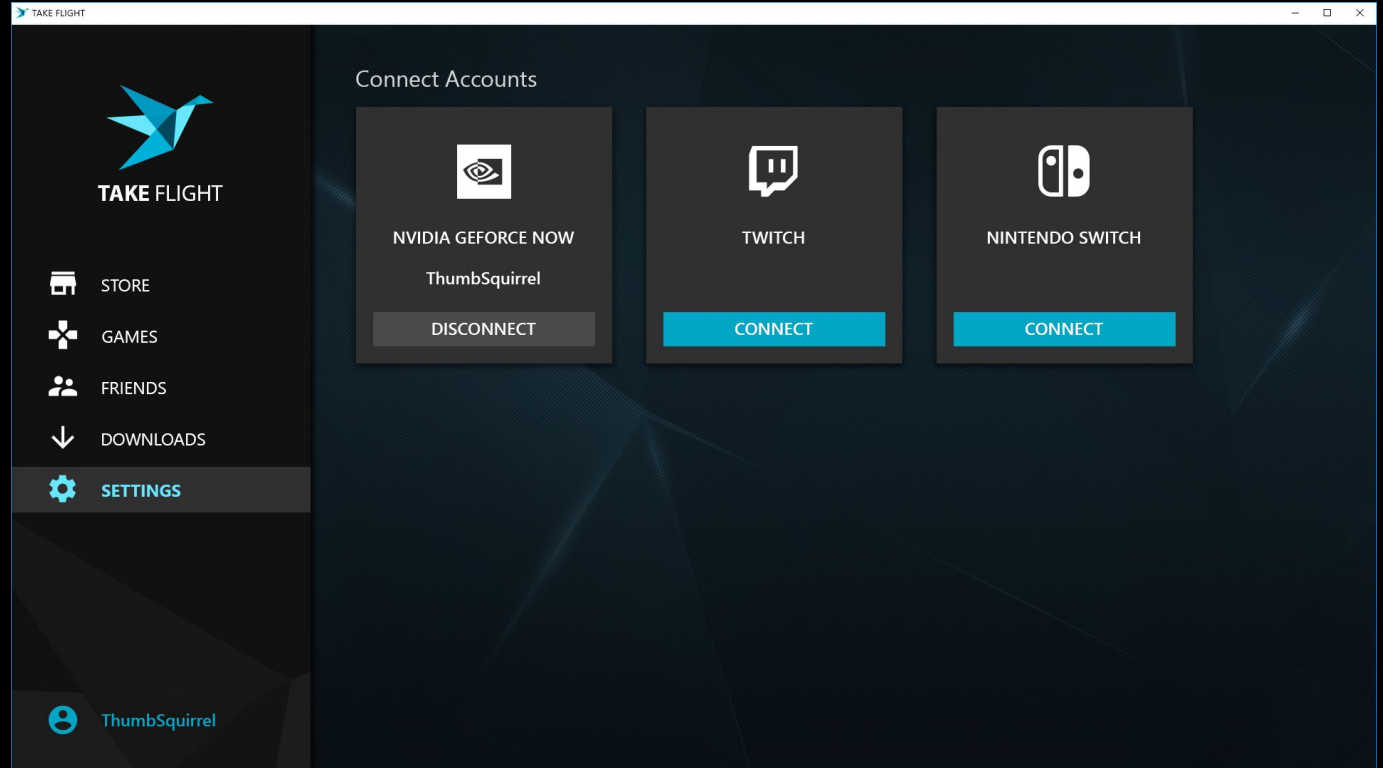
### SETTINGS PAGE

Gamers link accounts from third-party systems to provide additional functionality in the publisher's application.

Linking accounts is accomplished using the industry standard OAUTH2 workflow in a web browser window.

Authorization tokens are then cached by the launcher so functionality can be restored automatically when the gamer logs into the application.

Gamers who create and link an NVIDIA GeForce NOW account are able to stream games to their device.



# EXAMPLE LAUNCHER

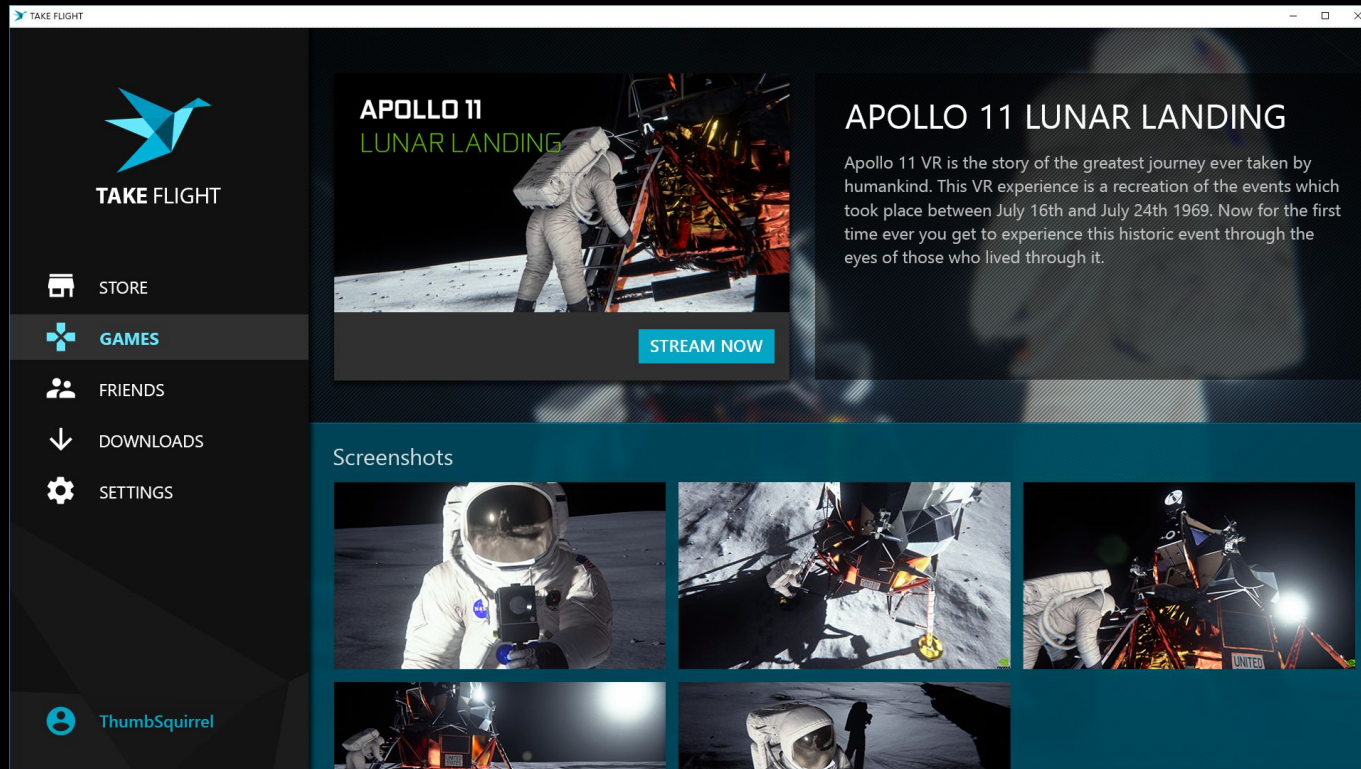
STREAMING WITH NVIDIA GEFORCE NOW

## GAMES PAGE

Gamers are shown an element in the application which opens the streamer window for those games which are supported by NVIDIA GeForce NOW.

The application uses SDK API calls to verify a specific game is able to be streamed and to start streaming.

The application shows the STREAM NOW button, or doesn't, based on whether or not the specific game can be streamed.



# REQUIRED INTEGRATION

## ADDING A CLOUD STREAMING OPTION

### LOGIC FLOWS

- Check with SDK to determine GFN environment to know when to start a stream
- Use SDK to start streaming when user activates UI trigger
- Use SDK callbacks to know the status of the stream

### RELEVANT SDK METHODS

```
GfnRuntimeError gfnInitializeRuntimeSDK(gfnDisplayLanguage) ;  
bool gfnIsRunningInCloud() ;  
void gfnStartStreamAsync(StartStreamInput * input, StartStreamCallbackSig  
    cb, void * context, unsigned int timeoutMs) ;  
void gfnShutdownRuntimeSDK() ;
```

# OPTIONAL INTEGRATION

## Use of API Wrapper Functions

Use the C-based API wrapper functions to avoid needing to managing the lifecycle of the SDK library as well as calling export functions.

Use the C-based `gfnSecureLoadLibrary` API to check the digital signature of the SDK library to avoid tampering and spoofing.

### LOGIC FLOWS

- Load GFN SDK library and Initialize the SDK
- Start streaming when user activates UI trigger
- Use SDK callbacks to know the status of the stream
- Release SDK and unload GFN SDK library

### RELEVANT SDK METHODS

```
GfnRuntimeError GfnInitializeSDK(gfnDisplayLanguage);  
GfnRuntimeError GfnIsRunningInCloud(bool * isRunningInCloud);  
GfnRuntimeError GfnStartStreamAsync(StartStreamInput * input,  
StartStreamCallbackSig cb, void * context, unsigned int timeoutMs);  
void gfnShutdownRuntimeSDK();
```



# ACCOUNT LINKING

## FOR SINGLE SIGN-ON

# LINKING ACCOUNTS TO SUPPORT SINGLE SIGN-ON

## INTEGRATION NECESSARY

The best experience for gamers requires a one time operation to link their publisher account with an NVIDIA account. Afterward, the user simply logs into the launcher app and can start streaming.

### ACCOUNT LINKING

- User performs a one time account linking operation from the launcher.
- Local launcher cooperates with NVIDIA and its own IDM to associate respective Account IDs.

### SINGLE SIGN-ON

- User signs in via launcher login.
- Local launcher authorizes streaming via NVIDIA IDM.
- Cloud launcher retrieves the launcher ID based on NVIDIA ID.



# FRAMEWORK OVERVIEW

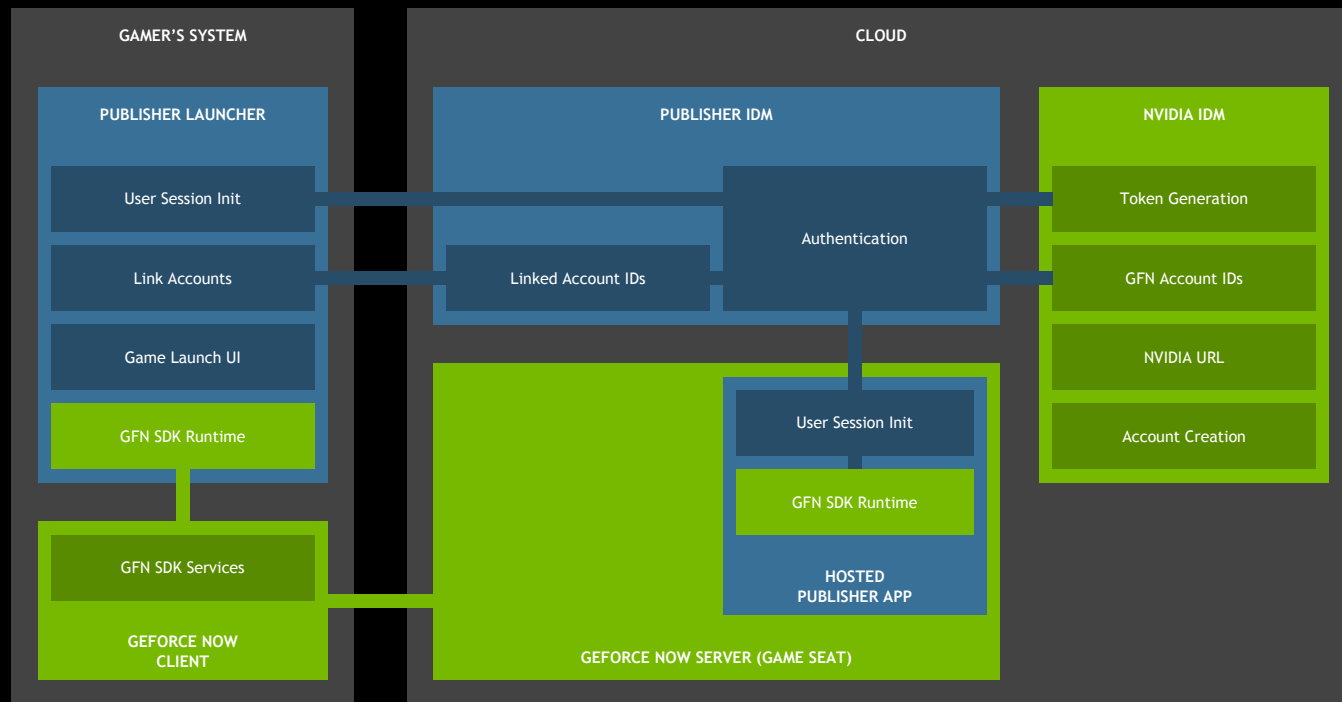
## COMPONENTS & CONNECTIONS

### GEFORCE NOW ARCHITECTURE

This overview illustrates where each component is installed or hosted, and shows important connections between various components.

### SUPPORTED FUNCTIONALITY

- New User Account Creation
- Account Linking
- Single Sign-On

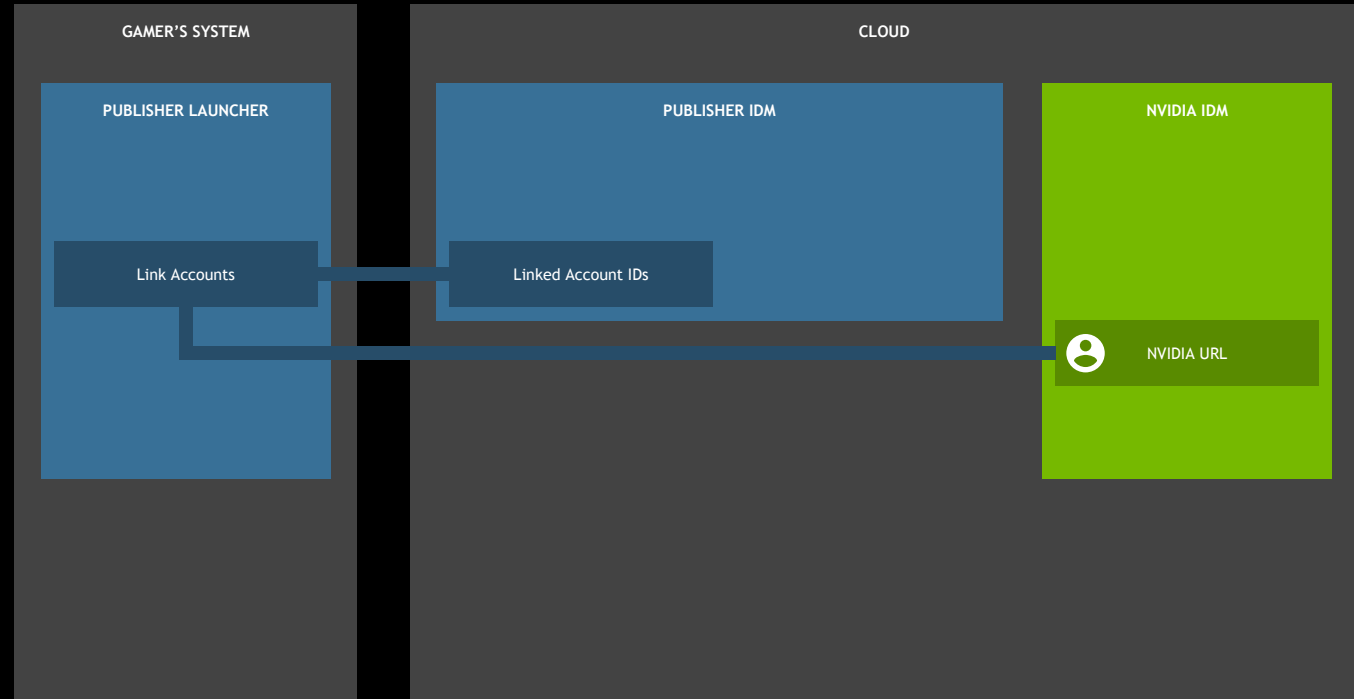


# ACCOUNT LINKING

## ONE TIME OPERATION

### LINKED ACCOUNTS

- Publisher Launcher authenticates via NVIDIA IDM using *NVIDIA URL*
- if new user, NVIDIA IDM creates new *NVIDIA User Account*
- NVIDIA IDM returns *NVIDIA User ID*
- Publisher Launcher sends *NVIDIA User ID* to Publisher IDM
- Publisher IDM links *NVIDIA User ID* with *Publisher User ID*



# SINGLE SIGN-ON

## STEP 1 OF 3

### 1 - LOCAL USER INITIALIZATION

- Publisher Launcher authenticates via Publisher IDM
- Publisher IDM retrieves token from NVIDIA IDM

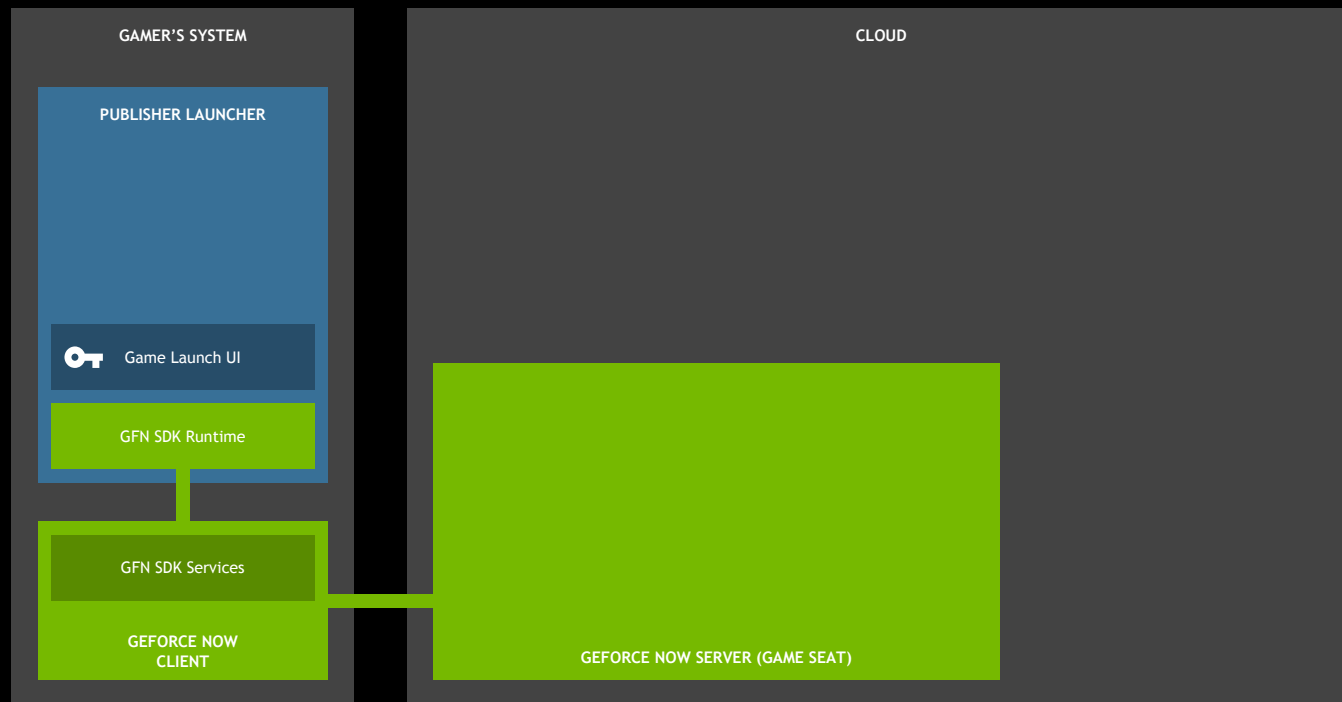


# SINGLE SIGN-ON

## STEP 2 OF 3

### 2 - GAME STREAM TRIGGER

- Publisher Launcher passes token to GFN SDK on stream call
- GFN Client uses token to log in to GeForce NOW



# SINGLE SIGN-ON

## STEP 3 OF 3

### 3 - CLOUD USER SESSION INIT

- Hosted Publisher App retrieves token from GFN SDK
- Hosted Publisher App authenticates via Publisher IDM passing token
- Publisher IDM retrieves NVIDIA User ID from NVIDIA IDM using token
- Publisher IDM looks up Publisher User ID using NVIDIA User ID





# MANAGING BUILDS

## PROCESS AND TOOLS



# HOW TO UPLOAD A NEW BUILD

## NVIDIA DEVELOPER SERVICE CONSOLE

### Upload on NVIDIA Developer Service Console

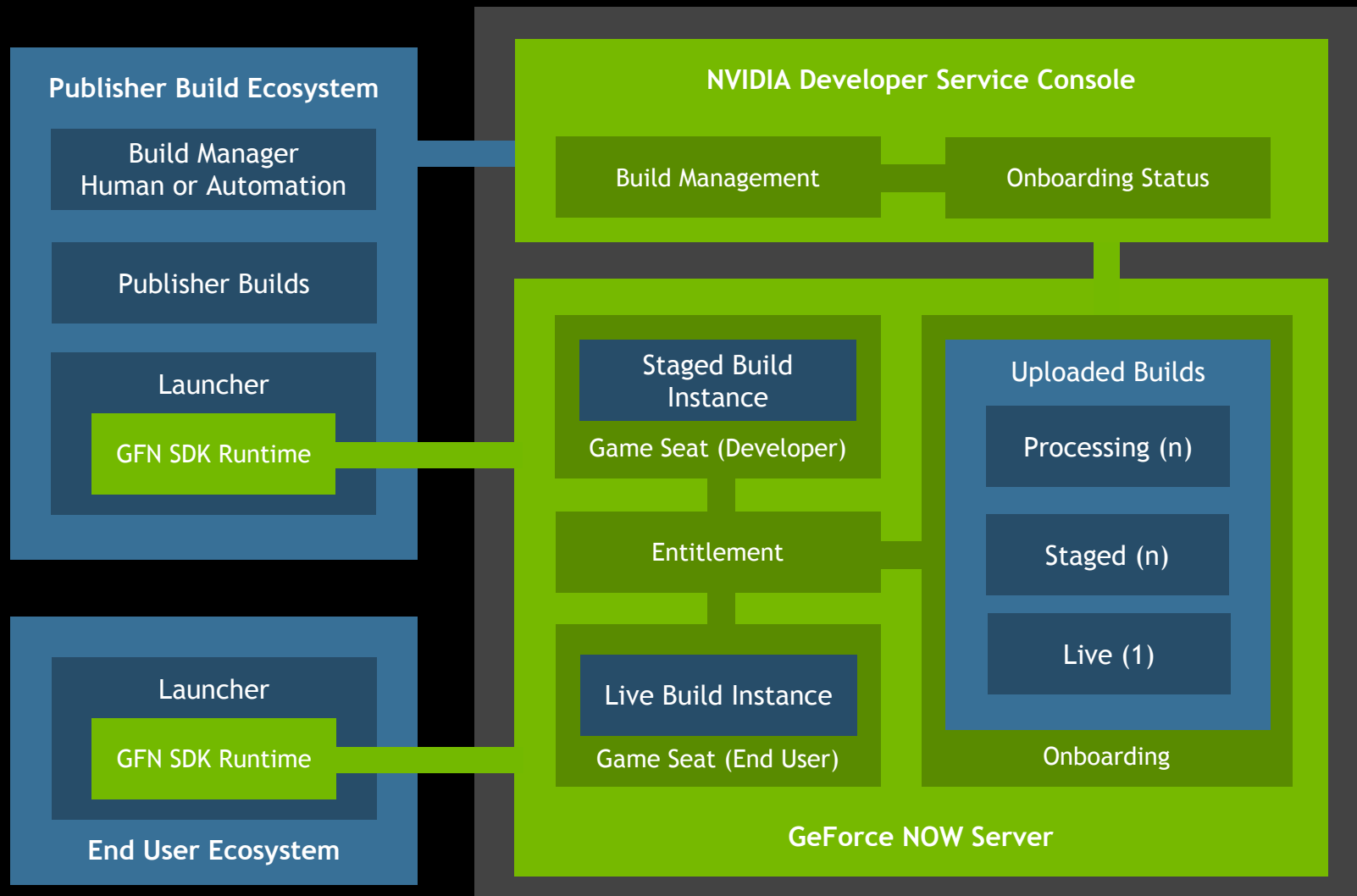
The screenshot shows the 'Add New Build' interface in the NVIDIA Developer Service Console. The top navigation bar includes the NVIDIA logo, 'APPLICATIONS', 'ORGANIZATIONS', 'GAME READY SERVICES', and 'NVIDIA DEVELOPER SERVICES'. A user is signed in as 'dwilson@nvidia.com'. The main content area is titled 'Add New Build' and features a sidebar with 'Source', 'Details', 'Run Configuration', and 'Review'. The 'Source' tab is active, showing a 'Build File:' section with a dashed box for file upload and the text 'Click or drag and drop a file here to upload'. 'Cancel' and 'Next' buttons are at the bottom right.

### Check the Status for Success!

STEP	RESULT
Dev provides game definition metadata	Package definition accepted
Dev uploads game build archive	Archive accepted & merged with definition
GFN auto-tests build	Success/Fail
GFN deploys build	Success/Fail

# BUILDS ECOSYSTEM OVERVIEW

## COMPONENTS & CONNECTIONS



# HOW TO DEBUG A BUILD

*SUPPORT CURRENTLY UNDER DEVELOPMENT*

- 1) Developer authenticates via Developer Service Console
- 2) Developer gets Special Purpose Game Seat from Developer Service Console
- 3) Developer selects a specific (perhaps unreleased) game build
- 4) Developer uses Debug API to debug session
- 5) Special Purpose Game Seat time limit expires or is released by Developer
- 6) Developer gets Logs from their game sessions via Developer Service Console



# NEXT STEPS

## INTEGRATING GEFORCE NOW SDK

# SIGN UP

## GEFORCE NOW SDK DEVELOPER ZONE

Sign up today to receive access to the GeForce NOW SDK developer zone on NVIDIA.com.

The developer zone has all the necessary information for you to get started, including details about pulling the GeForce NOW SDK from GitHub.

A sample application is included which showcases the SDK APIs needed to stream a game.



The screenshot shows the NVIDIA Developer website. The top navigation bar includes links for RTX, GAMEWORKS, DESIGNWORKS, VRWORKS, COMPUTEWORKS, JETPACK, DRIVE, CLARA, and OPEN SOURCE. The main content area is titled "GeForce Now" and features a large image of a laptop displaying a game scene with a spaceship. Below the image, the text reads: "Join the GeForce NOW Developer Program". It states that GeForce NOW transforms any laptop, desktop, or Android device into a high-powered gaming PC using NVIDIA's powerful GPUs streamed from the cloud. The developer program gives game publishers access to the GeForce NOW SDK, a set of APIs, components, and tools facilitating the simple integration and configuration required. It automates login, entitlement and update functions to create an instant and seamless experience for users. The text also mentions that they are building out data centers and currently have 15 across North America and Western Europe, ready to stream your game using their best-in-class GPUs. GeForce NOW supports over 500 games, and continues to add new titles regularly. Below this, there is a section titled "Why Integrate the GeForce NOW SDK?" with a bulleted list of benefits: Add GeForce NOW cloud gaming to your digital store and expand the market for your games to any PC, Mac or Android device; Enable instant play without long wait times for digital downloads; Deliver invisible patches to users through auto cloud updates; Improve the user experience with single sign on; and Enable games to launch in seconds with pre-loading. At the bottom, there is a "Get Started" section with a brief description and a "Join now" button.

<https://developer.nvidia.com/join-geforce-now-dev-program>

# PULL THE SDK FROM GITHUB

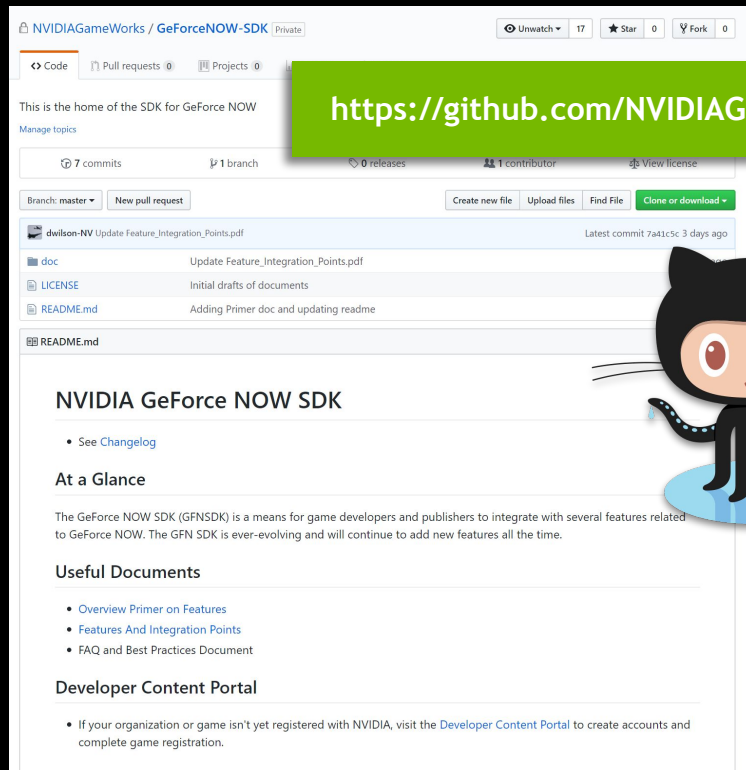
EVERYTHING YOU NEED TO SUCCESSFULLY INTEGRATE ALL IN ONE PLACE

Once you've signed up, visit the GeForce NOW SDK GitHub\* from the member page.

The GitHub repo contains:

- API references
- Header files
- Run-time libraries
- A sample launcher application

\* limited release available in April 2019





# TRY THE SAMPLE

## EXAMPLE CODE FOR ESSENTIAL FLOWS

### GEFORCE NOW SDK SAMPLE

This sample application contains working code with just enough UI controls showing essential integration points and functionality provided by the GeForce NOW SDK.

### SDK APIs IN THIS CODE SAMPLE

- Link a GeForce NOW account
- Obtain supported game list
- Start streaming of a game



# TEST DRIVE STREAMING ON GEFORCE NOW

## AVAILABLE OPTIONS

### EXISTING GAME

Want to test drive streaming using our GeForce NOW app?

We'll provide you preferred access to GeForce NOW so you can stream our library of supported games.

### SPECIAL BUILD

Want to try a different build of an existing supported game?

We'll onboard your special build and make it available to you for streaming on GeForce NOW.

### NEW GAME

Want to try out your unreleased game and see how well it streams?

We'll onboard your new game build and make it available to you for streaming on GeForce NOW.



**THANKS FOR USING**  
**THE GEFORCE NOW SDK**