GEFORCE NOW SDK 1.8

INTEGRATOR PRIMER | December 2021

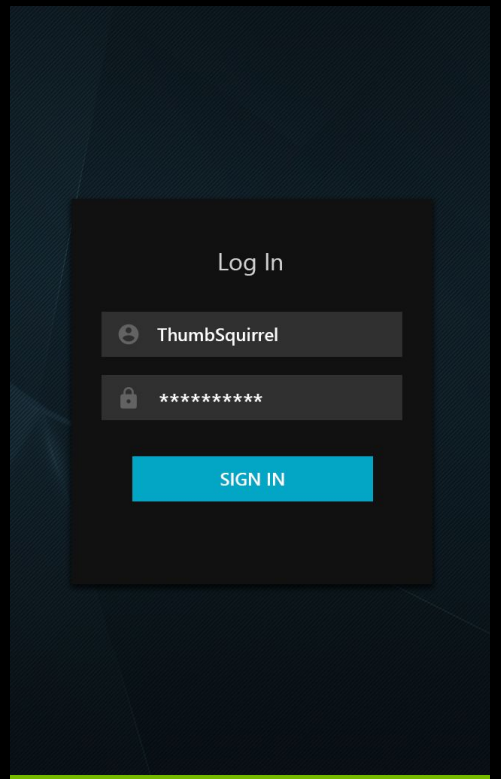
INTRODUCING THE GEFORCE NOW SDK

THE PATH TO CLOUD GAMING

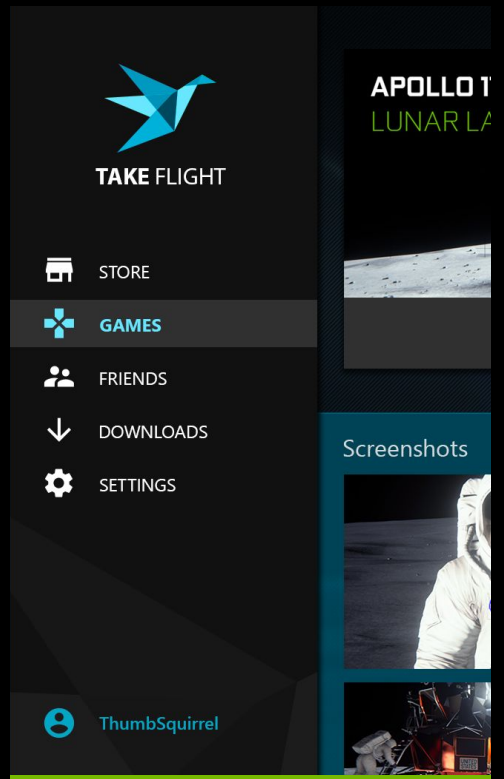
The GeForce NOW SDK is a set of APIs, components, and tools that enable developers to seamlessly add the power of cloud gaming to their ecosystem.

STREAM GAMES DIRECTLY FROM YOUR LAUNCHER

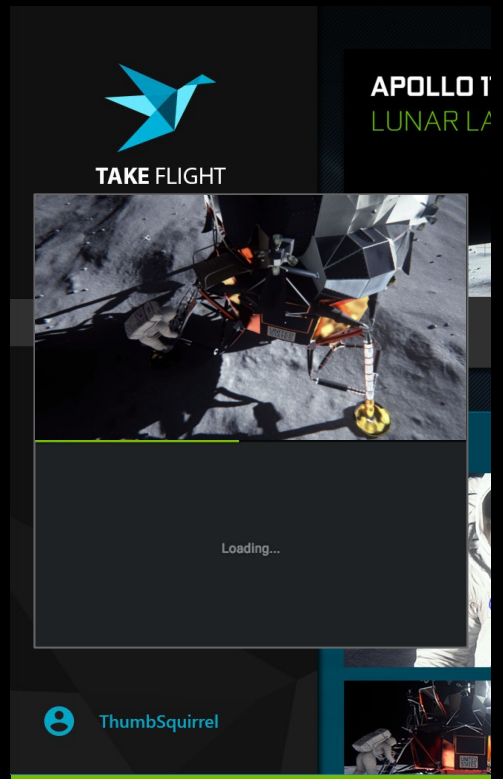
EXAMPLE EXPERIENCE



Single Sign-On
w/ Linked Accounts



Seamless
Integration

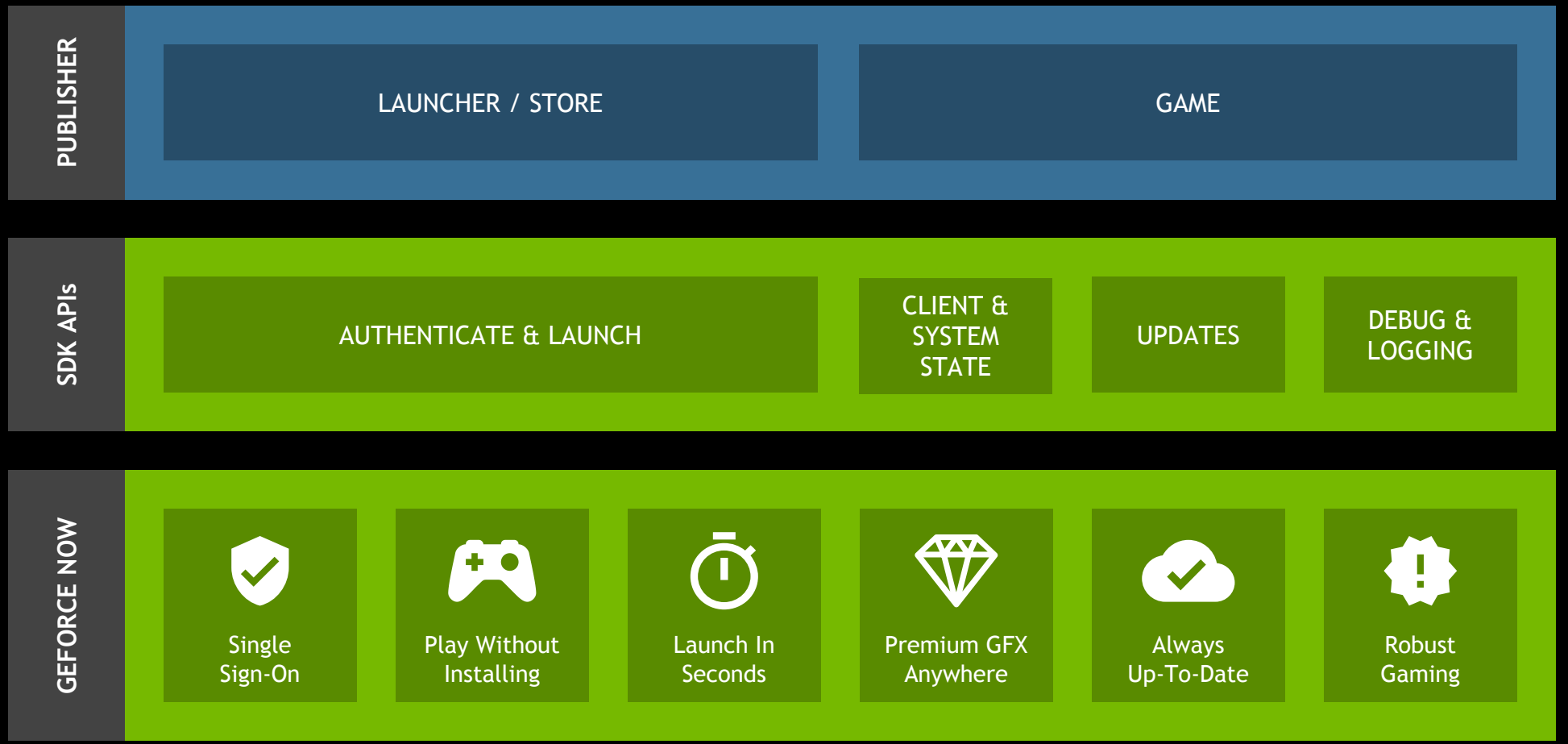


Launch
In Seconds

Premium Experience
Everywhere

THE POWER OF GEFORCE NOW

APIS AND BENEFITS



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, as well as obtain information about client systems while running inside GeForce NOW.

An example launcher is shown.

GAME INTEGRATION

This topic covers the details on APIs available to games running in GeForce NOW to obtain various client and system information.

This topic is for Game Developers and Product Managers that want their games to run seamlessly in GeForce NOW.

ACCOUNT LINKING

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

Understanding Identity Management is key for Developers.

MANAGING BUILDS
(Coming soon)

This topic provides a high-level overview of how to have game builds onboarded into GeForce NOW and how to obtain access to debug your build in GeForce NOW.

This topic is for Quality Assurance and Release Management folks.

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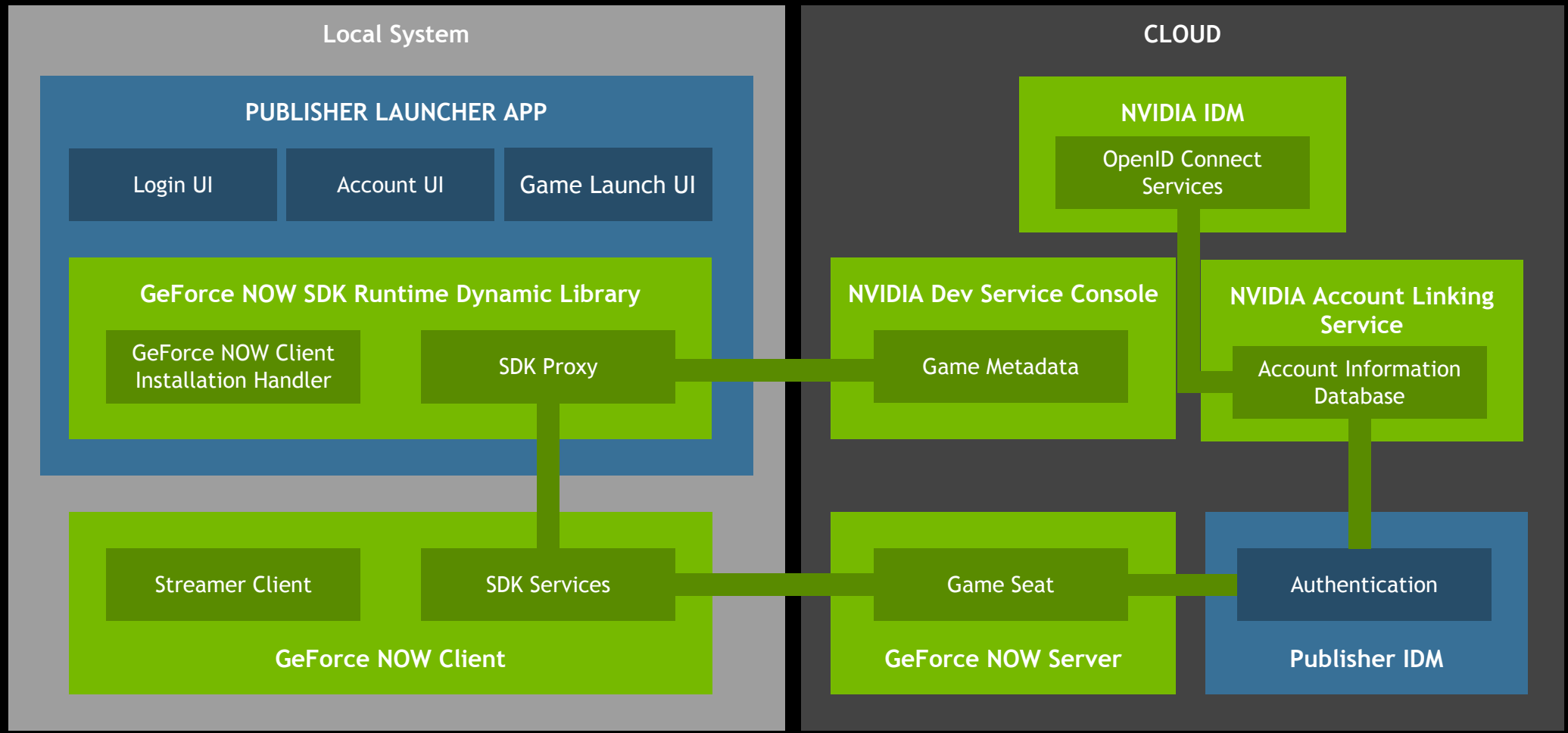
LAUNCHER INTEGRATION

ADDING CLOUD GAMING

ECOSYSTEM
COMPONENTS AND CONNECTIONS



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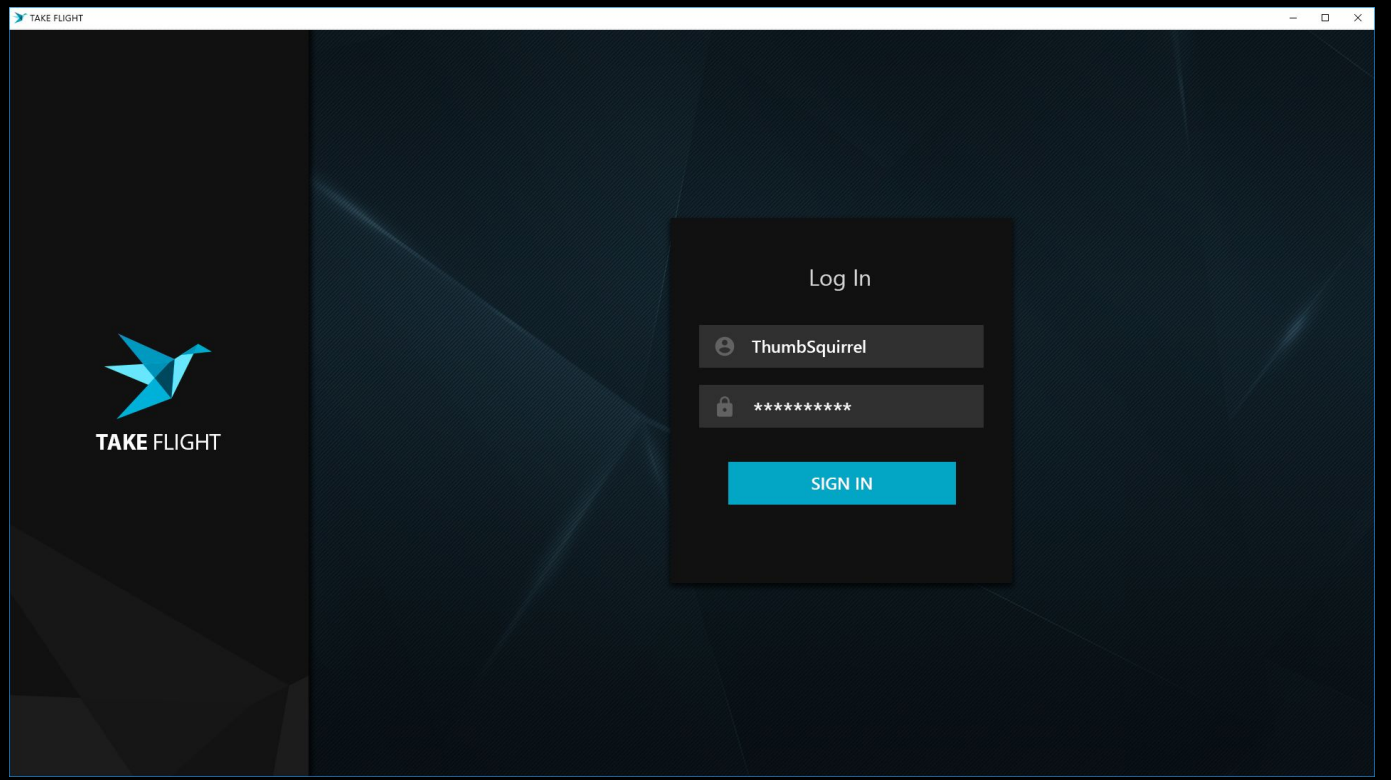
EXAMPLE LAUNCHER
USER AUTHENTICATION

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

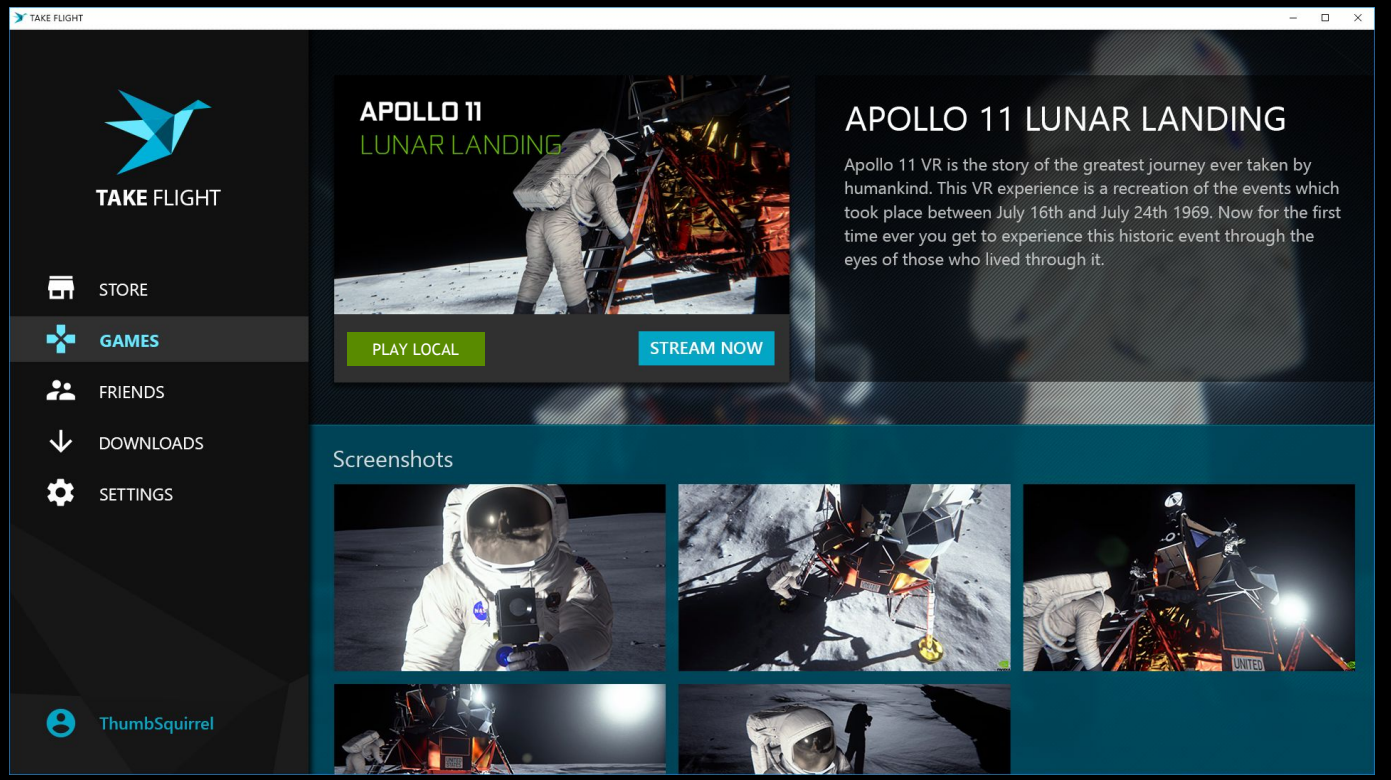
STREAMING WITH NVIDIA GEFORCE NOW

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, first installing the GeForce NOW client as needed
- Use SDK callbacks to know the status of the stream

RELEVANT SDK METHODS

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

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 automatically validate the SDK libraries 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();
```

SECURE CLOUD ENVIRONMENT DETECTION

USE OF SECURE CLOUD CHECK API

This API checks if running in GeForce NOW game seats in a highly secure fashion.

Useful to decide if high-value features can be enabled or disabled.

Refer to the Cloud Check API document in the ./doc folder for more information.

LOGIC FLOWS - Example 1

- Launch SDK-enabled process with elevated privileges
- Call `GfnError GfnIsRunningInCloudSecure(GfnIsRunningInCloudAssurance*);`
- Check returned value for the level of assurance to be running in GFN environment

LOGIC FLOWS - Example 2

- Cloud secure checks can be done from SDK-enabled windows service
- Send command from non-elevated process to the service to query for cloud check
- Call from service `GfnError GfnIsRunningInCloudSecure(GfnIsRunningInCloudAssurance*);`
- Send returned value for the level of assurance to be running in GFN environment to the non-elevated process

ASSURANCE VALUES

- gfnNotCloud = Not running in GFN cloud, running local client
- gfnIsCloudLowAssurance = Software heuristics used to determine GFN
- gfnIsCloudMidAssurance = Software and network heuristics to determine GFN
- gfnIsCloudHighAssurance = Hardware heuristics used to determine GFN

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GAME INTEGRATION

APIS FOR SEAMLESS INTEGRATION

CLOUD APIS

OBTAINING INFORMATION ABOUT CLIENTS OR GFN SESSION STATE

LOGIC FLOWS

- Check with SDK to know when running in GeForce NOW environment
- Use SDK to obtain various information about the connected client and the network performance
- Use SDK callbacks to know when GeForce NOW session status or client system changes to update game behavior

RELEVANT SDK METHODS

```
GfnRuntimeError gfnInitializeRuntimeSDK(GfnDisplayLanguage);
bool gfnIsRunningInCloud(void);
GfnRuntimeError gfnGetClientInfo(GfnClientInfo* clientInfo);
GfnRuntimeError gfnRegisterClientInfoCallback(ClientInfoCallback clientInfoCallback, void* pUserContext);
GfnRuntimeError gfnRegisterPauseCallback(PauseCallbackSig pauseCallback, void* pUserContext);
GfnRuntimeError gfnRegisterSaveCallback(SaveCallbackSig saveCallback, void* pUserContext);
GfnRuntimeError gfnRegisterExitCallback(ExitCallbackSig exitCallback, void* pUserContext);
void gfnShutdownRuntimeSDK(void);
```

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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 store account with an NVIDIA account. Once accomplished, the user enjoys a seamless experience of playing games in GFN without needing to enter their publisher credentials during the streaming session.

ACCOUNT LINKING

- User performs a one time account linking operation from the GFN client.
- Launcher IDM cooperates with NVIDIA Accounting Linking service through OpenID Connect protocols to exchange account information.
- Account information is used to create mapping between two accounts.

SINGLE SIGN-ON

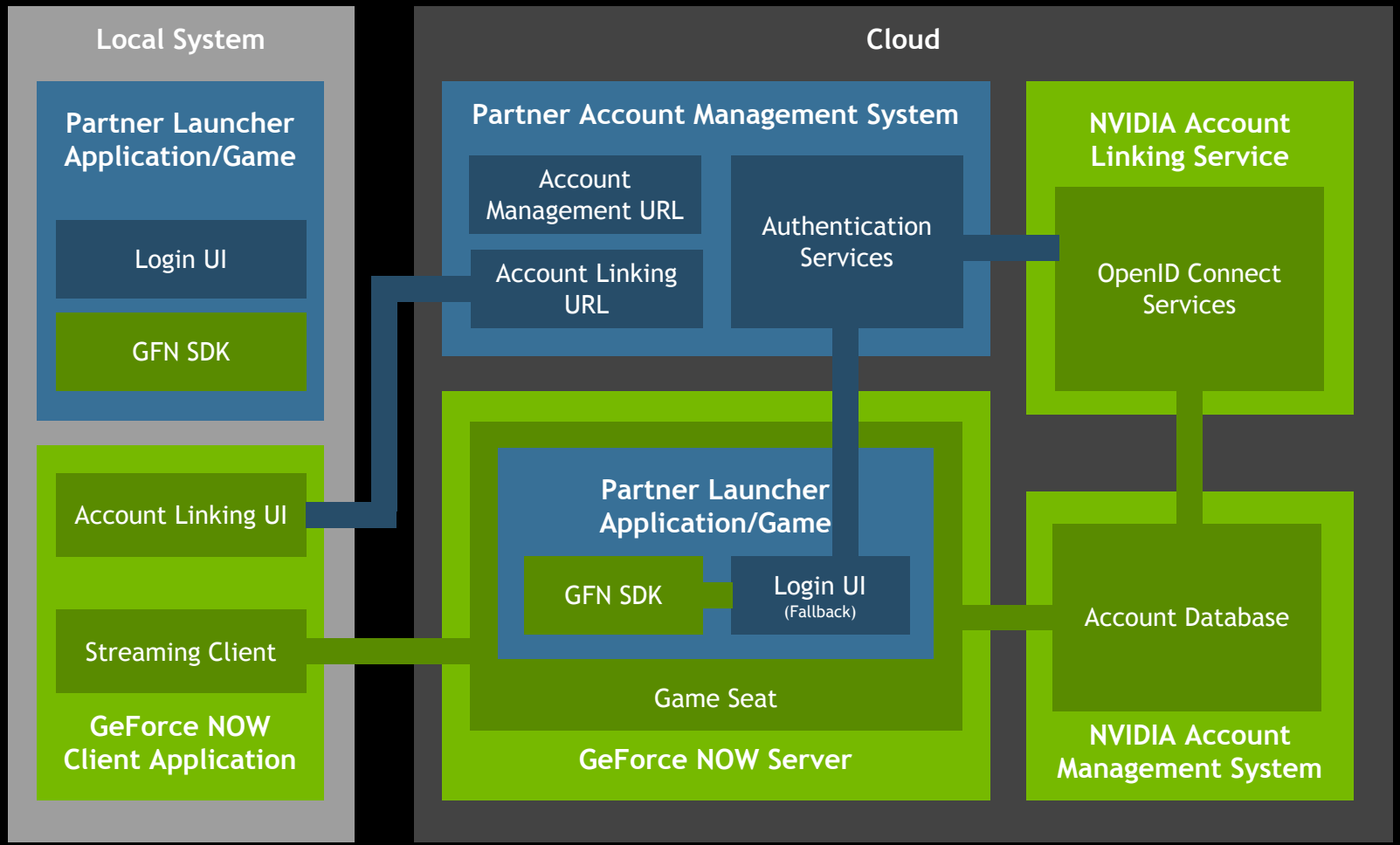
- User links accounts to share account information.
- User streams a game that uses linked accounts.
- In-stream launcher or game authorizes streaming via account information provided by GFN SDK.

ACCOUNT LINKING
COMPONENTS AND CONNECTIONS

GEFORCE NOW ACCOUNT LINKING ARCHITECTURE

This overview illustrates where each component is installed or hosted, and shows important connections between various components involved in account linking and Single Sign-On.

For more detailed information, see the Account Linking and Single Sign-On guide in ./doc folder.



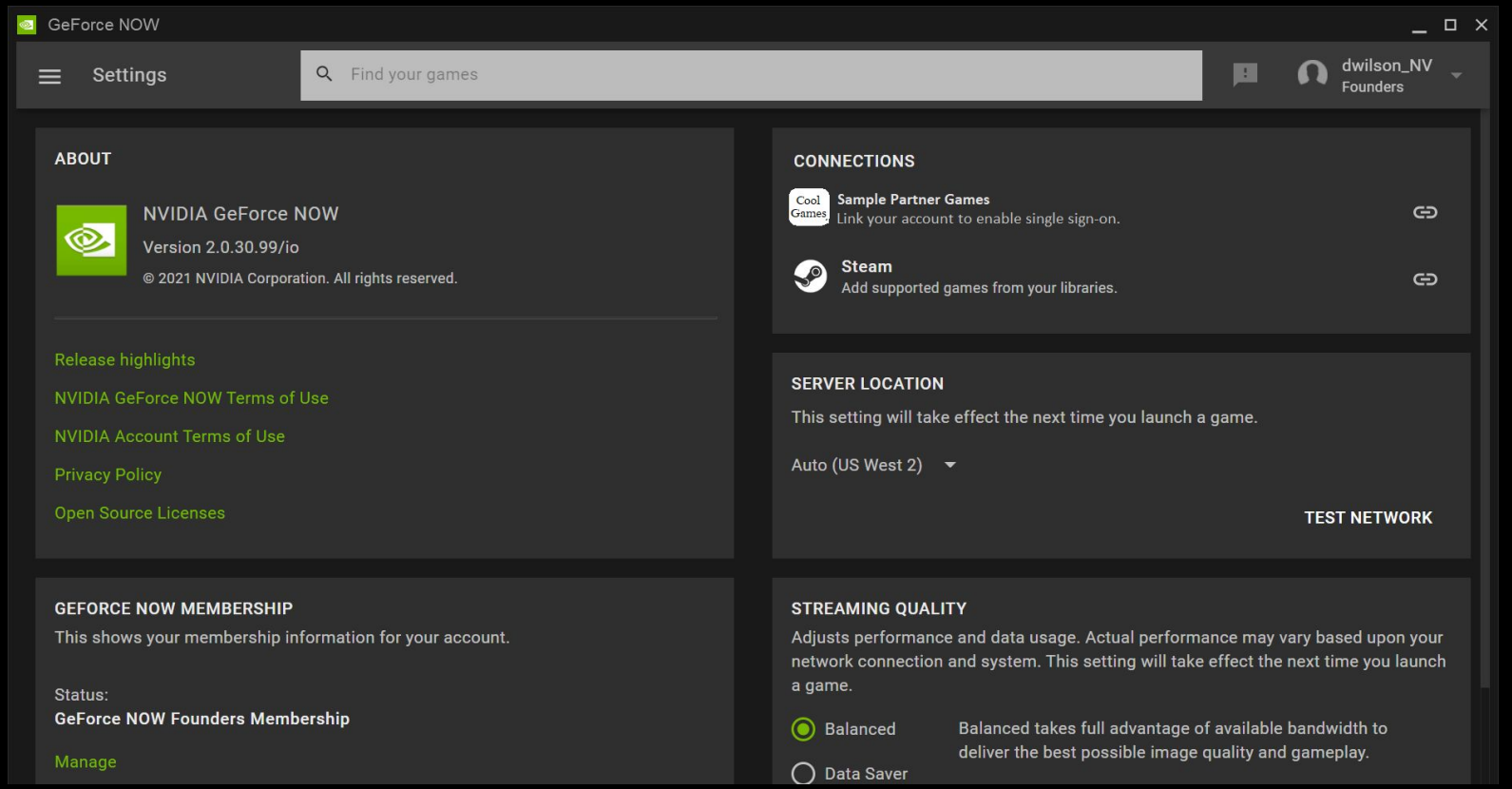
EXAMPLE LAUNCHER
THIRD-PARTY ACCOUNT LINKING

SETTINGS PAGE

Gamers who create and link an NVIDIA GeForce NOW account are able to stream games to their device without having to manually enter their publisher credentials.

Linking accounts is accomplished using the industry standard OpenID Connect (OIDC) workflow in a web browser window.

Authorization tokens and user account data are then cached by the backend services so login authorization data can be provided to the publisher application running in the Geforce NOW game seat.



MANAGING BUILDS (Coming Soon)

PROCESS AND TOOLS

HOW TO UPLOAD AND DEBUG A BUILD

SUPPORT CURRENTLY UNDER DEVELOPMENT

Contact your NVIDIA Developer Relations Representative or the NVIDIA Support Group (dcs-support@nvidia.com) to have your game onboarded into GeForce NOW and be granted access to the Game Seat Debug Wizard toolset to debug your game builds on a Special Purpose Game Seat.

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.

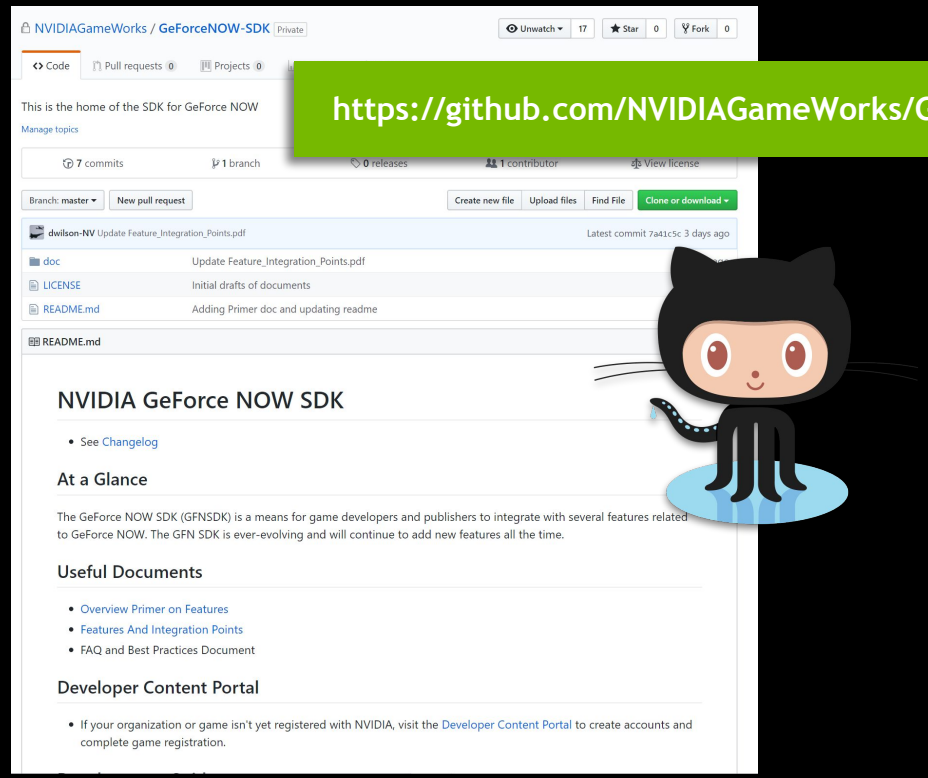
PULL THE SDK FROM GITHUB

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



https://github.com/NVIDIAGameWorks/GeForceNOW-SDK

TRY THE SAMPLE

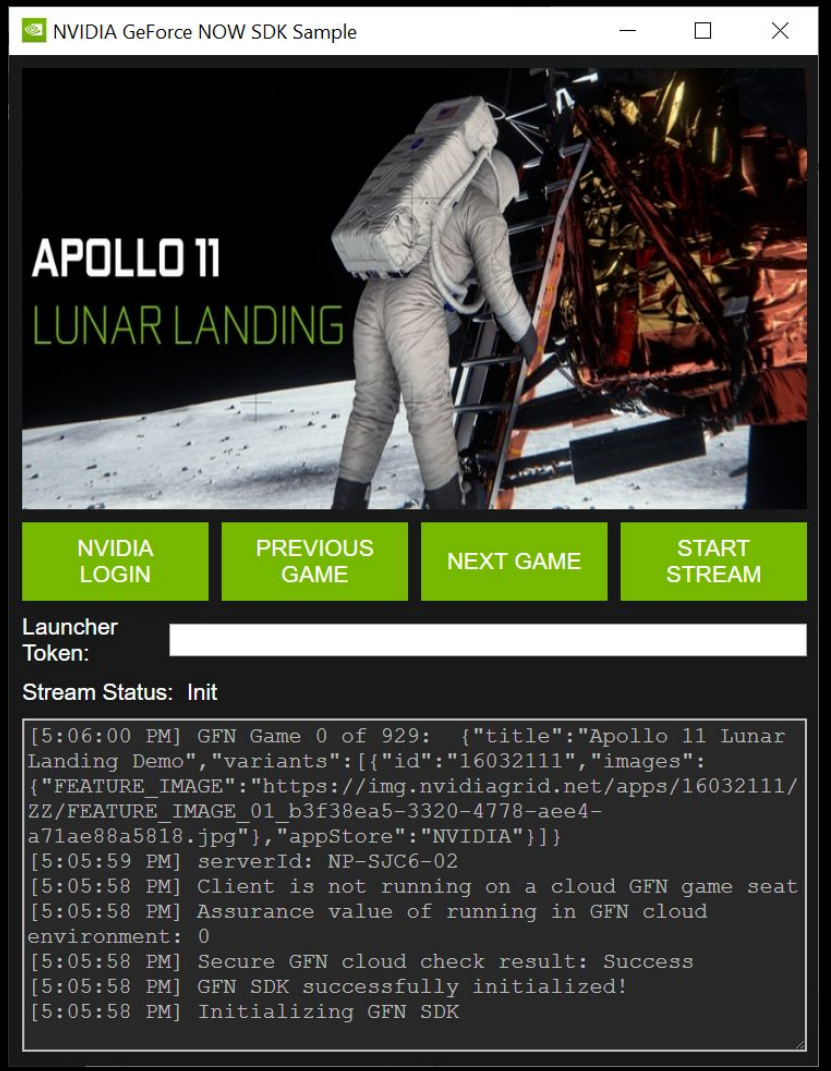
EXAMPLE CODE FOR ESSENTIAL FLOWS

GEFORCE NOW SDK SAMPLE LAUNCHER APPLICATION

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

- Check if running in GeForce NOW cloud environment
- Obtain supported game list
- Start streaming of a game
- Get stream state status
- Get Client info (when run in Geforce NOW cloud environment)



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.

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THANKS FOR USING

THE GEFORCE NOW SDK