
AMD
RADEON
Software
Under NDA until
9:01 AM EST December 13th, 2018

AMD RADEON

# Software

An exploration into unrealized visual experiences

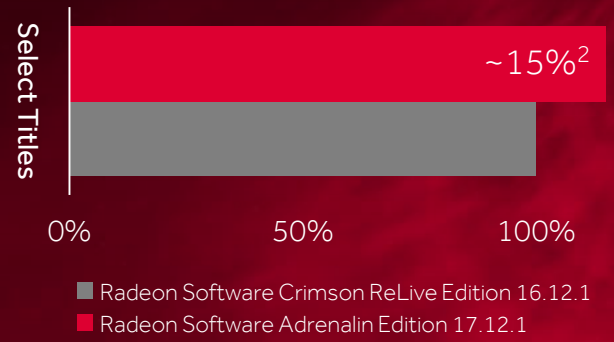
# Our Journey


| 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|
| AMD Catalyst™ Omega | Radeon™ Software Crimson Edition | Radeon™ Software Crimson ReLive Edition | Radeon™ Software Adrenalin Edition |

# In the Last Four Years

Up to **10%**[1]

Average performance improvement




**100+**

Over 100 AAA games supported on Day-0*

FARCRY5 · FORZA HORIZON 4 · ASSASSIN'S CREED ODYSSEY · STRANGE BRIGADE

**10+**

Significant new features introduced*

- AMD RADEON ReLive
- AMD RADEON WattMan
- AMD RADEON Overlay
- AMD RADEON Chill
- AMD RADEON Settings
- AMD Link

1 , 2– See endnotes for details. Obtained as an average improvement of select titles measured in AMD Catalyst Omega, Radeon™ Software Crimson Edition, Radeon™ Software Crimson ReLive Edition & Radeon™ Software Adrenalin Edition software launches
*From Catalyst Omega 14.501 (Dec 2014) to Radeon Software Adrenalin Edition 18.12.1 (Dec 2018)

# "The Industry's Most Stable Driver"

AMD's Graphics Driver received a 93% reliability score in 2018 testing. Up to 11% higher than the competition.




*In May 2018, AMD commissioned QA Consultants to evaluate the stability of several of the latest graphics drivers from both AMD and NVIDIA.

# High User Satisfaction

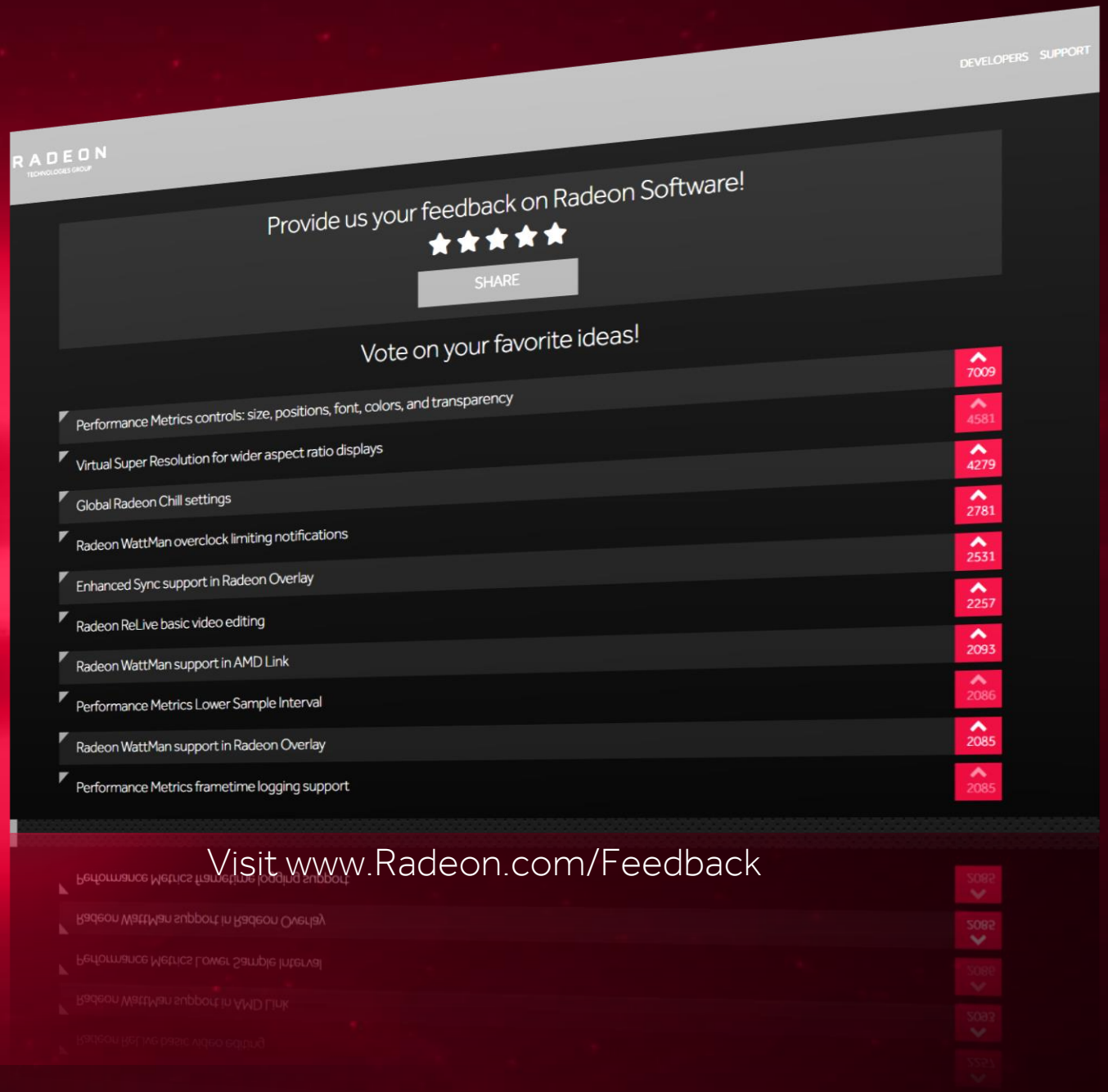
For the past 2 years, 90% of AMD users have been satisfied or very satisfied with the Radeon™ Software experience.




*Based on internal data, average from December 8th, 2016 – November 10, 2018

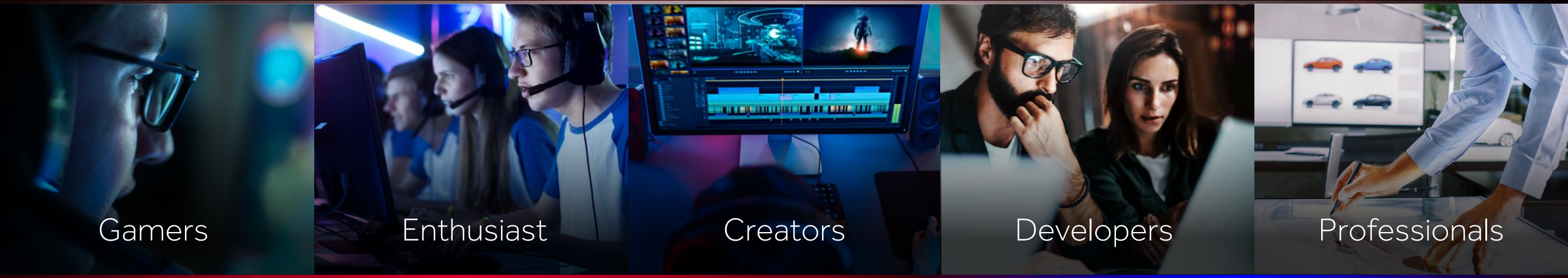
# User Feedback is at the Core of Our Innovation

We're listening to user feedback to improve the experience and make it even better.




Visit www.Radeon.com/Feedback

# Crafted for You




Radeon™ Software

Radeon™ Pro Software

# Starting Today, Discover the Radeon™ Graphics of Tomorrow

AMD

RADEON

# Software

## Adrenalin 2019 Edition


for GAMERS

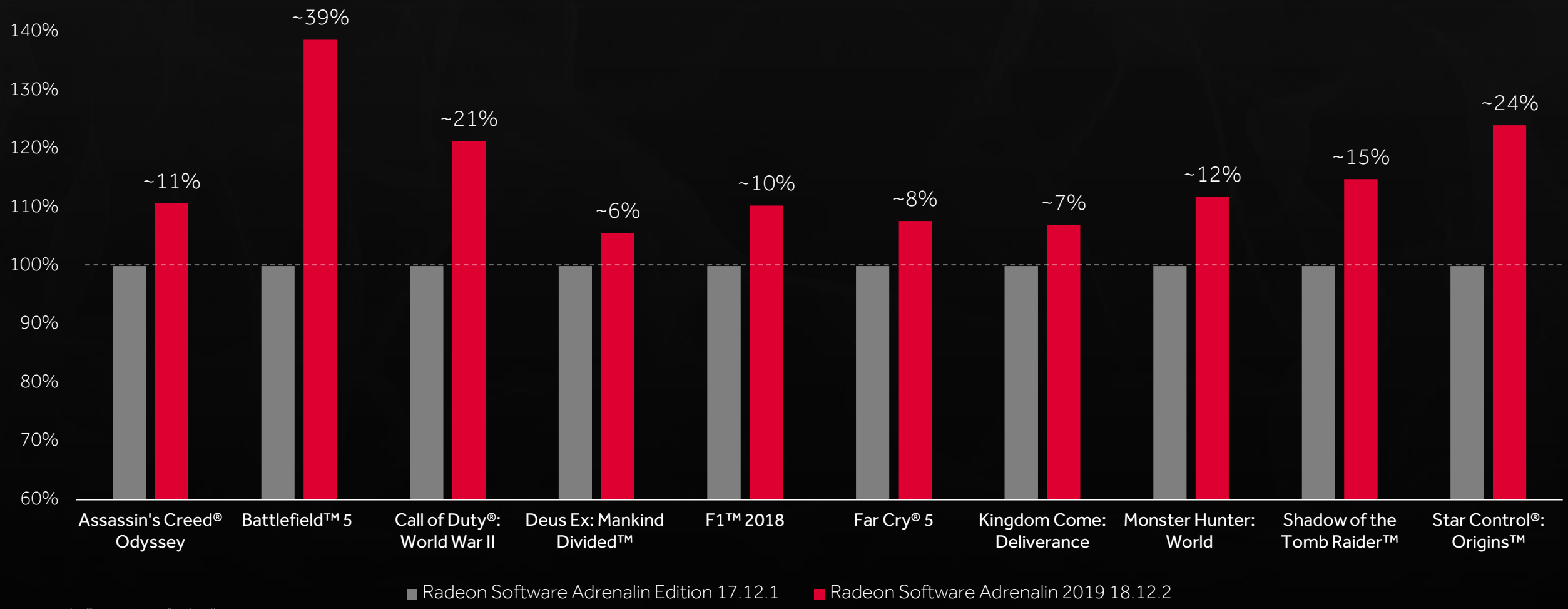
# Performance

Focused on delivering the best gaming experience with app and driver improvements

# Up to 15% Average Performance Gains

## Since Radeon™ Software Adrenalin Edition Launch[1]

AMD RADEON RX 570




1 - See endnotes for details

# Project ReSX

## Performance optimizations of the most popular PC eSports titles

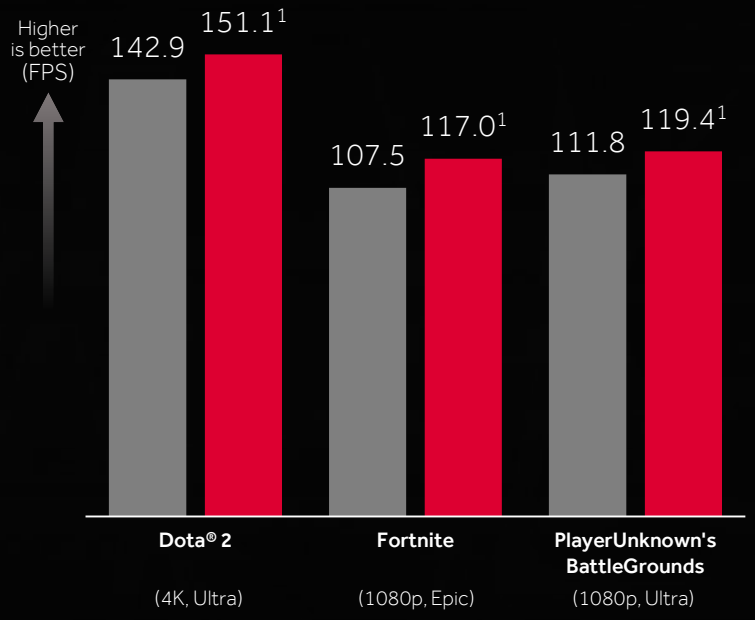
Focused on delivering improved FPS performance, 99th percentile frame times and click-to-response times

# Project ReSX

## Optimizing eSports Gameplay and Performance for Radeon™ GPUs

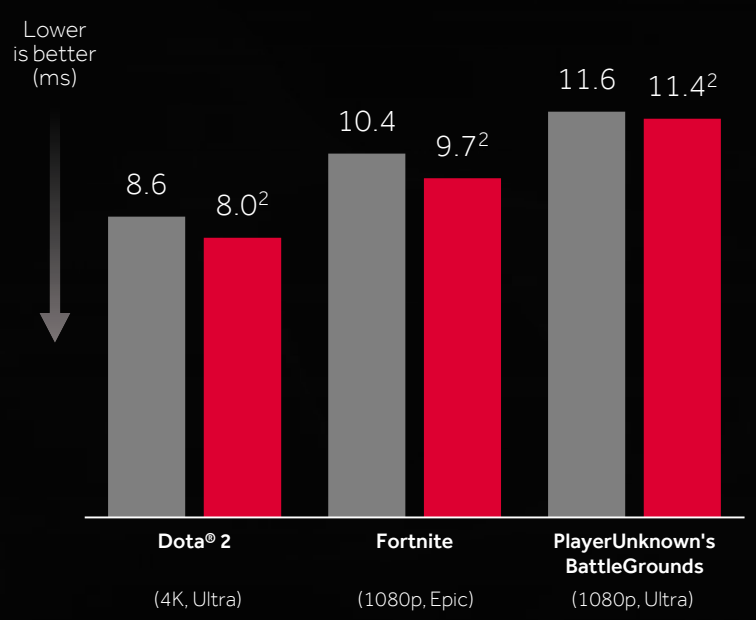
### Faster Gaming

FPS performance improvements



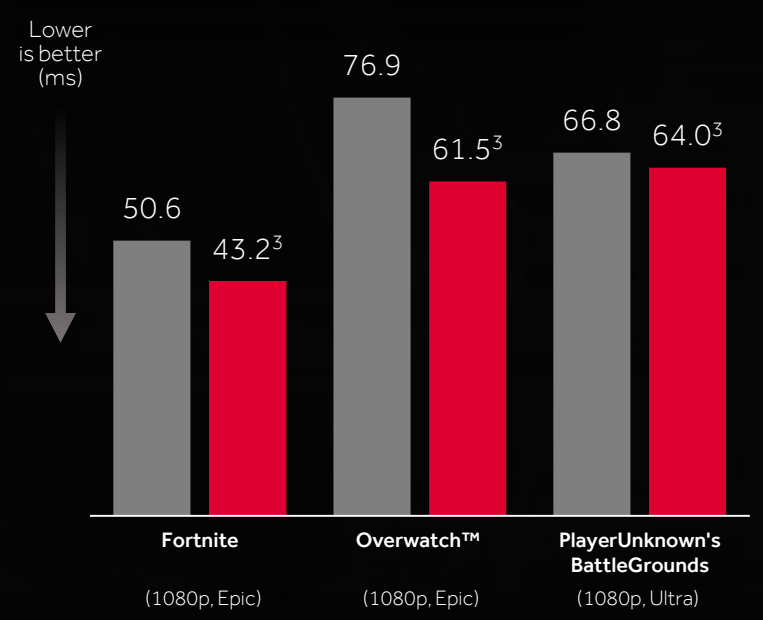

### Fluid Gaming

99th percentile frame time improvements




### More Responsive Gaming

Click-to-response improvements




Radeon Software Adrenalin Edition 18.3.1 | Radeon Software Adrenalin 2019

1, 2, 3 - See endnotes for details

# Radeon™ Advisors

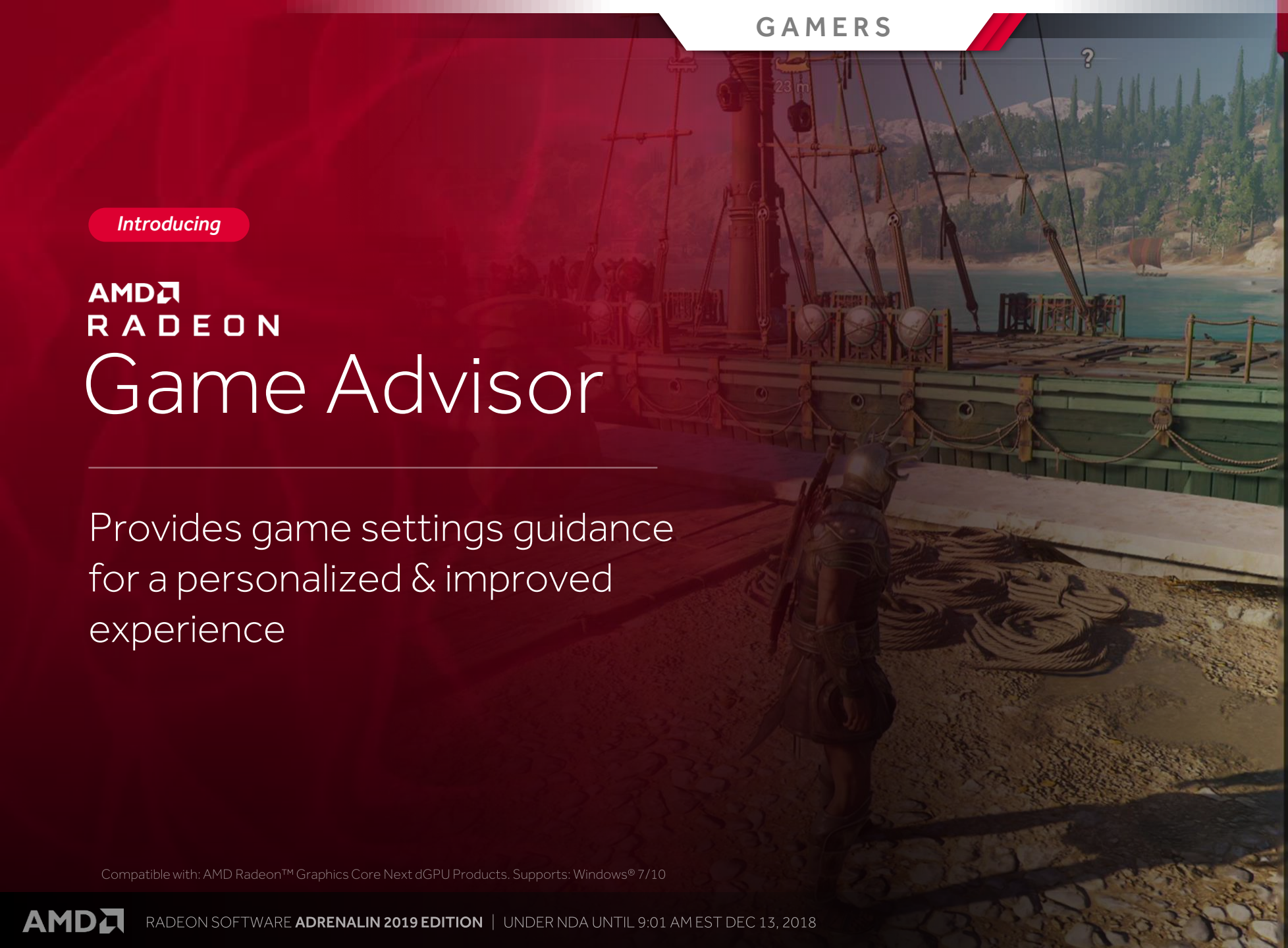
Streamlining ways to improve your gameplay

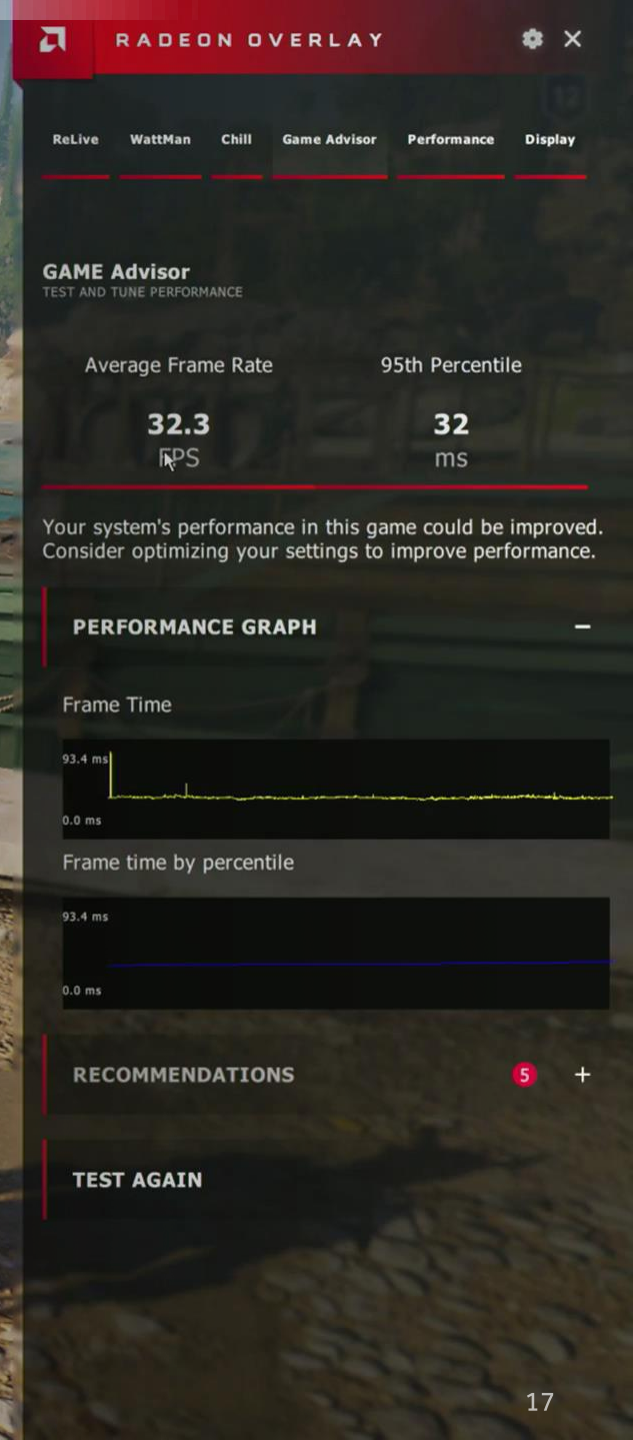
*Introducing*

AMD RADEON

# Game Advisor

Provides game settings guidance for a personalized & improved experience






Compatible with: AMD Radeon™ Graphics Core Next dGPU Products. Supports: Windows® 7/10

AMD RADEON

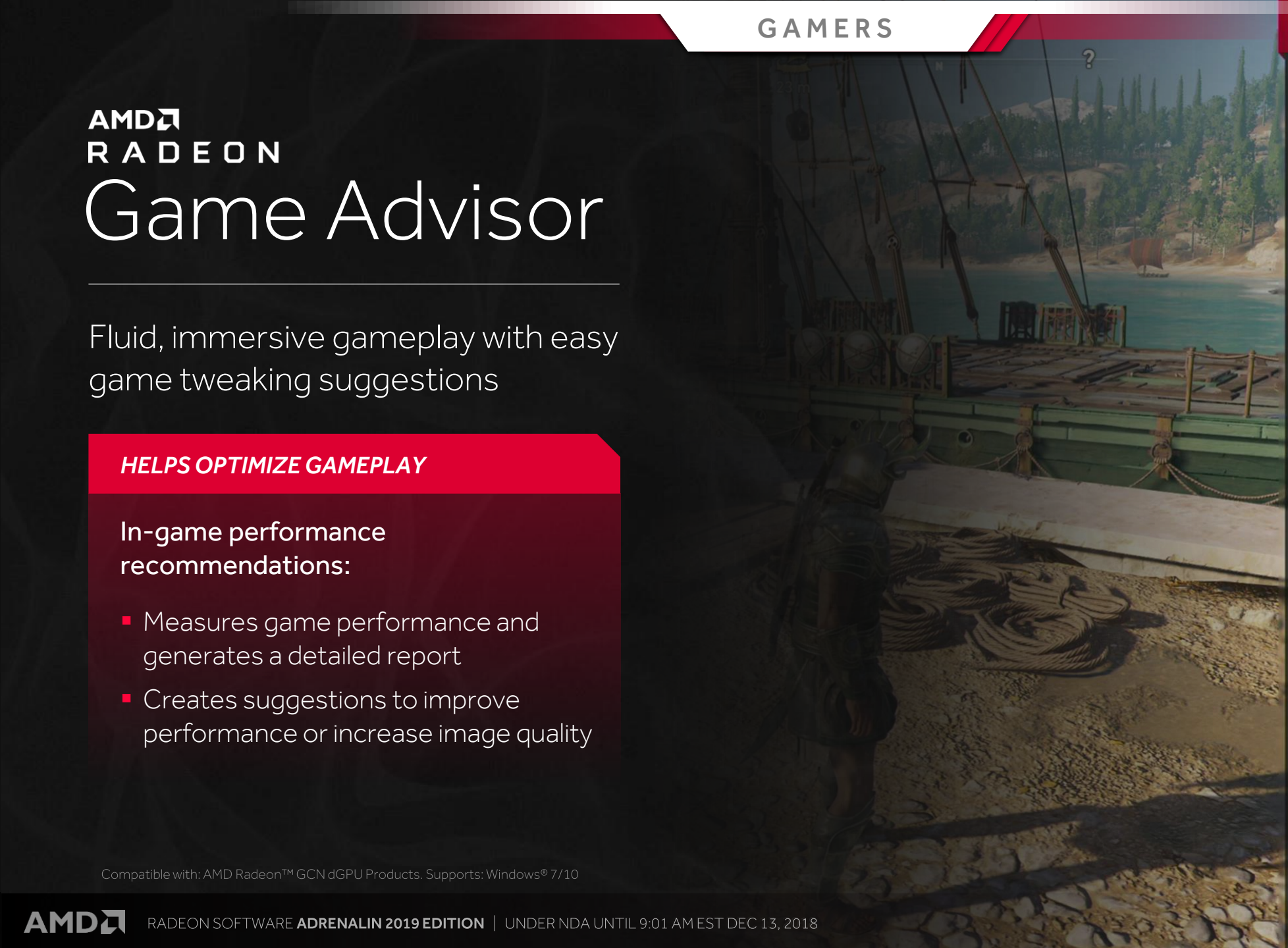
# Game Advisor

Fluid, immersive gameplay with easy game tweaking suggestions

***HELPS OPTIMIZE GAMEPLAY***

**In-game performance recommendations:**

- Measures game performance and generates a detailed report
- Creates suggestions to improve performance or increase image quality




Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10


*Introducing*

AMD RADEON

# Settings Advisor

## Introduces Radeon™ Settings to entry-level users

Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

AMD RADEON

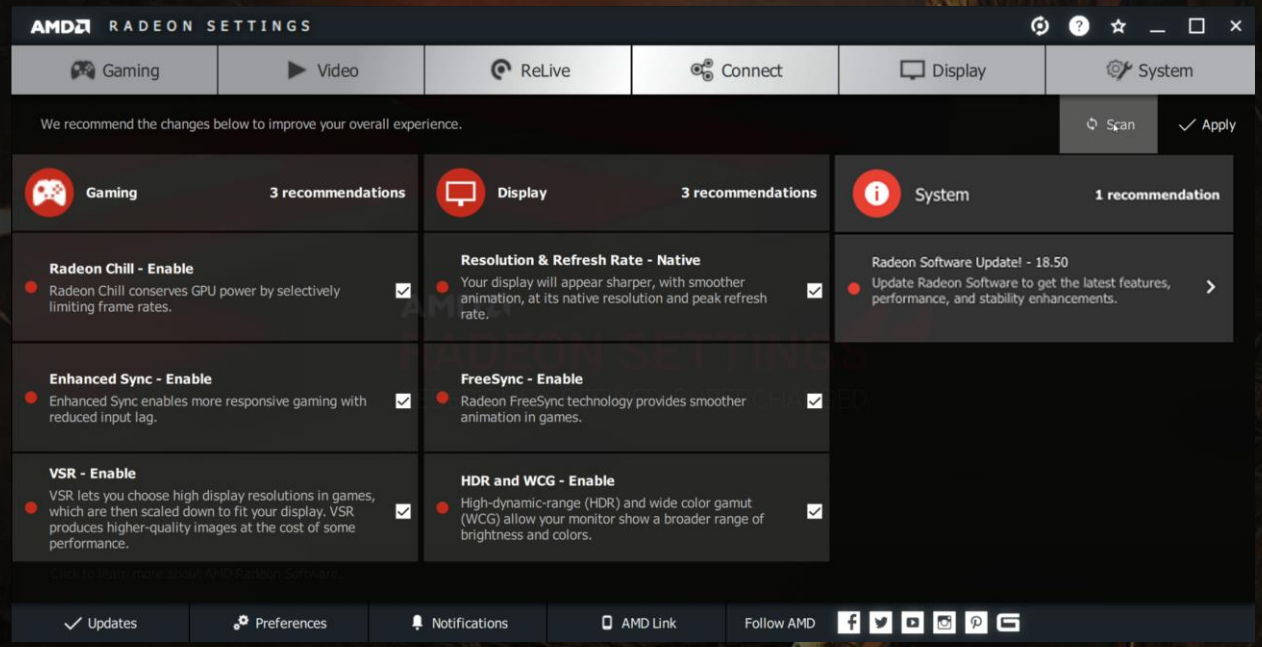
# Settings Advisor

Easily tailor settings to your hardware

***RADEON™ SETTINGS OPTIMIZED***

**Easy feature enablement:**

- Scans your system's capabilities and suggests settings to optimize
- Adjust the settings you choose in just a few clicks




Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10


# Upgrade Advisor

Analyzes your PC for minimum and recommended game compatibility*

Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10
* Available for Steam® purchased titles

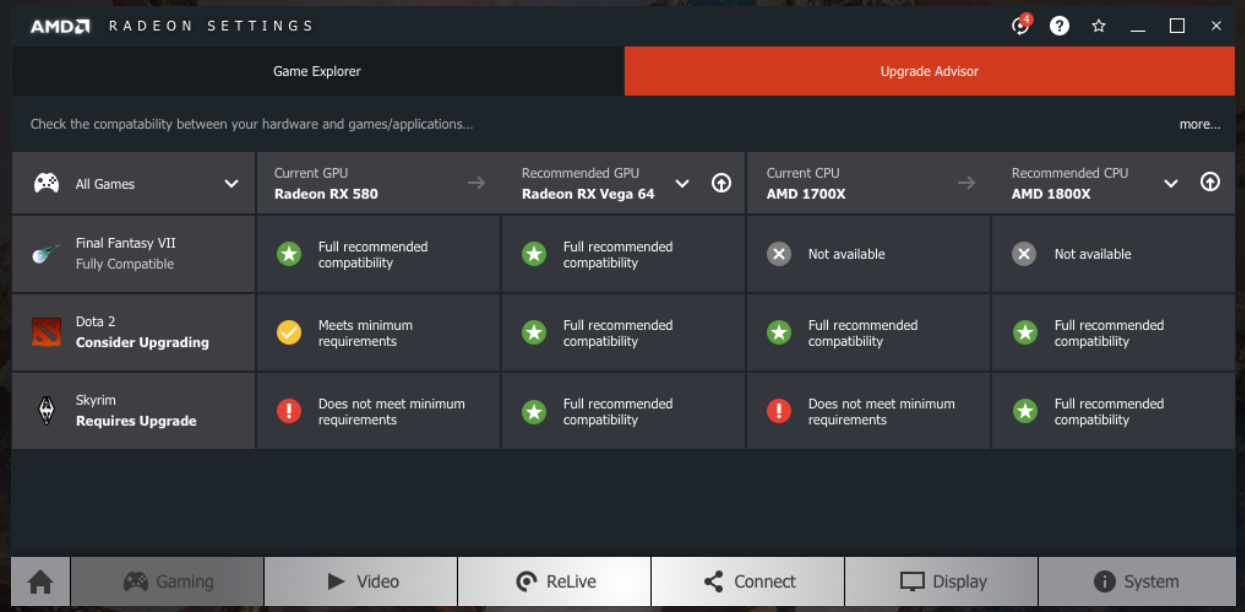
# Expanded Upgrade Advisor

Take the guesswork out of compatibility*

***WHAT'S NEW***

**Improved User Interface:**

- Revised interface with clear compatibility indicators
- Greater visibility with access to in game explorer and upgrade advisor tabs
- Quick multi-game compatibility analysis




Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10
* Available for Steam® purchased titles

# Radeon™ Advisors

## Optimizations Streamlined

### RADEON™ GAME ADVISOR

Game setting guidance for a personalized & improved experience

### RADEON™ SETTINGS ADVISOR

Introduces Radeon™ Settings to entry-level users

### UPGRADE ADVISOR

Analyzes your PC for minimum and recommended game compatibility

Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

AMD

AMD RADEON

# Installer

Get started quicker with a more streamlined installer

***WHAT'S NEW***

- A one-click install which keeps your existing Radeon™ Software install settings
- Clearer installation progress with a percentage indicator


Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

# for ENTHUSIASTS


AMD RADEON

# WattMan

Push your gameplay to the limit with AMD's groundbreaking power management technology

*See endnotes for details. GD-108
Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

AMD RADEON

# WattMan*

Performance & power optimizations simplified

***WHAT'S NEW***

**One-click tuning:**

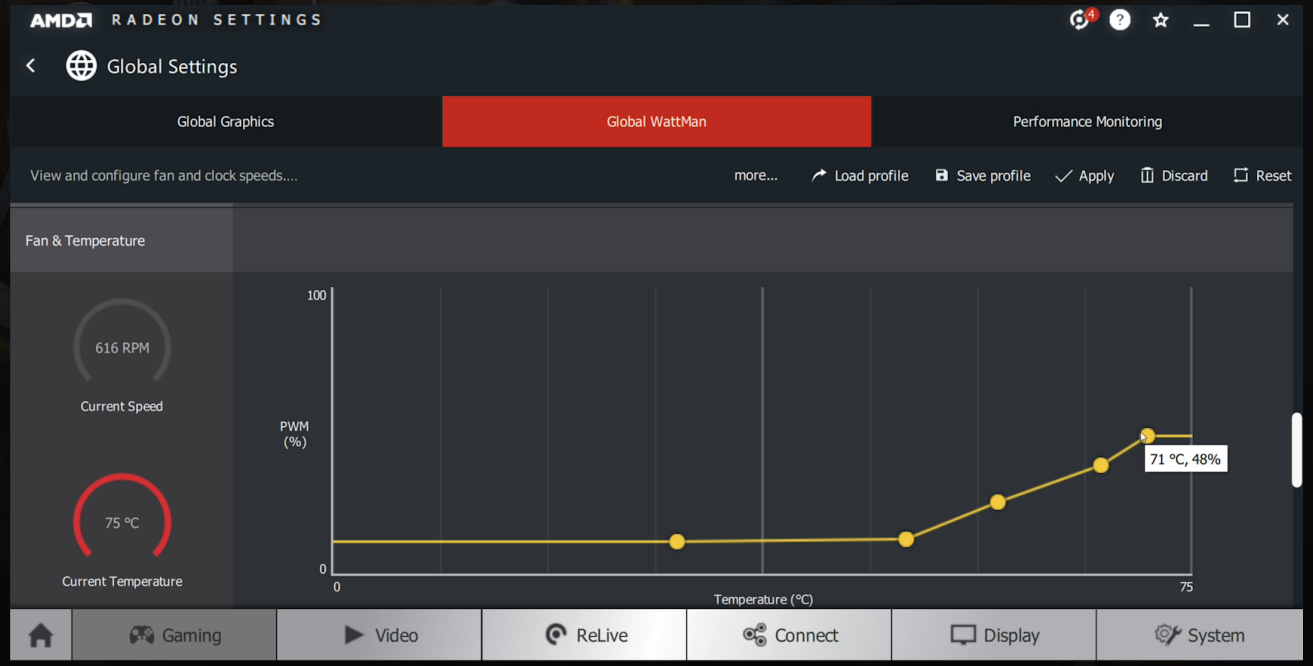
- Improve performance with auto-GPU & memory overclocking
- Improve GPU efficiency with auto-GPU undervolting


*See endnotes for details. GD-108
Auto-GPU, Memory Overclock & Auto-GPU Undervolt compatible with: AMD Radeon™ RX Vega dGPU Series Products. Supports: Windows® 7/10

AMD RADEON

# WattMan*

New & improved usability for more control



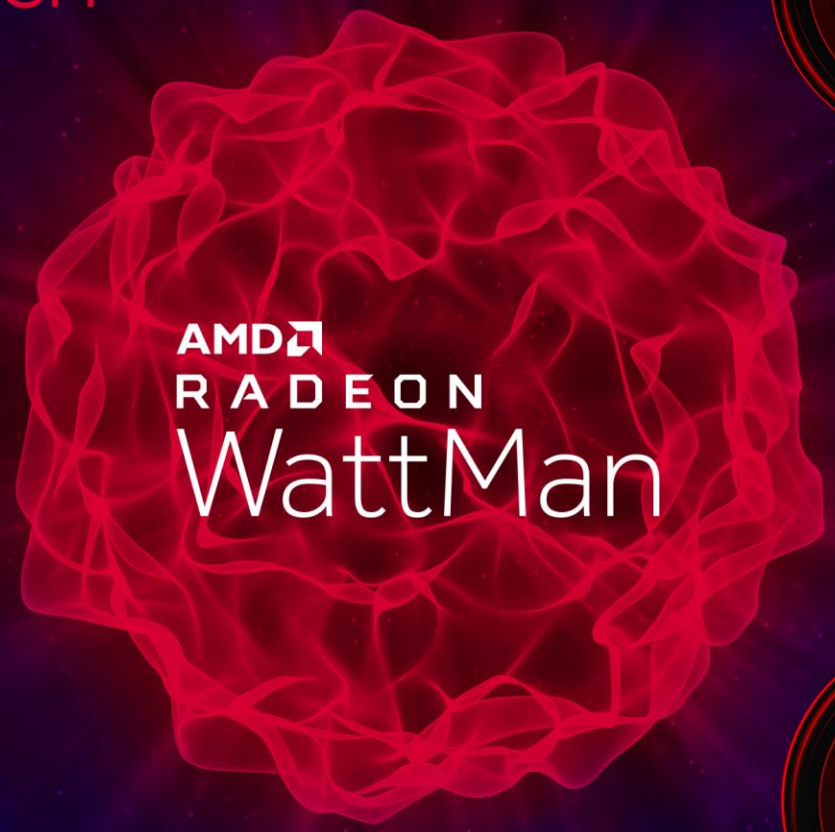

## *WHAT'S NEW*

### Improved user control:

- Change fan speed with temperature dependent fan curves and zero RPM fan control
- Unlocked Radeon™ RX Vega series DPM states for finer power adjustments
- Targeted optimization of memory bound applications with memory tuning

*See endnotes for details. GD-108
Fan Curve, Zero RPM & Memory Tuning compatible with: AMD RX Series dGPU Products. Supports: Windows® 7/10
Unlocked Radeon™ RX Vega Series DPM States compatible with: AMD Radeon™ RX Vega dGPU Series Products. Supports: Windows® 7/10

# 5 WAYS TO EXPLORE YOUR ADRENALIN RUSH




AUTO POWER & PERFORMANCE OPTIMIZATIONS

**1**

One-click auto GPU overclocking, auto memory overclocking & auto GPU undervolting

EXPANDED UI INTEGRATION

**2**

Now available in Radeon™ Overlay, AMD Link & Radeon™ Settings

UNLOCKED "VEGA" DPM STATES

**3**

Ability to control per state power management for Radeon™ RX Vega series products

MEMORY TUNING SUPPORT

**4**

Targeted optimization of memory-bound/ compute applications

IMPROVED FAN CONTROL

**5**

Adjust fan speeds with temperature dependent fan curves and zero RPM fan control

AMD


AMD RADEON

# Chill

The dynamic power-saving feature just got cooler

Compatible with: AMD Radeon™ GCN Products. Supports: Windows® 7/10

AMD RADEON

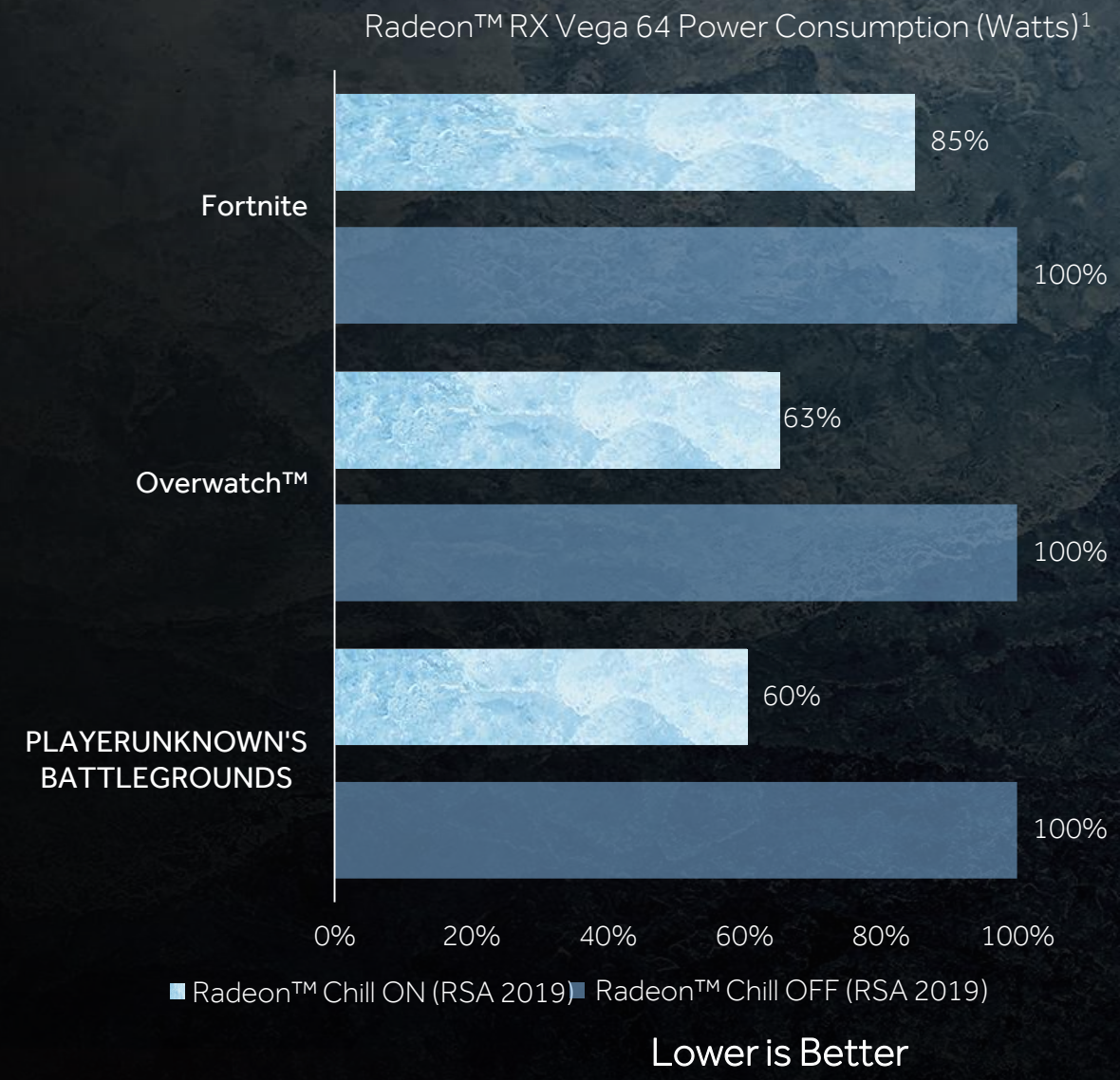
# Chill

Up to **20%** more power savings in select titles[1]

***WHAT'S NEW***

**Cooler & quieter gaming :**

- Improved Radeon™ Chill efficiency to increase power savings




1 – See endnotes for details
Power improvements compatible with: AMD Radeon™ RX series dGPU Products.
Supports: Windows® 7/10

AMD RADEON

# Display Technologies

Enabling fluid, responsive and stunning imagery on Radeon™ platforms

AMD RADEON

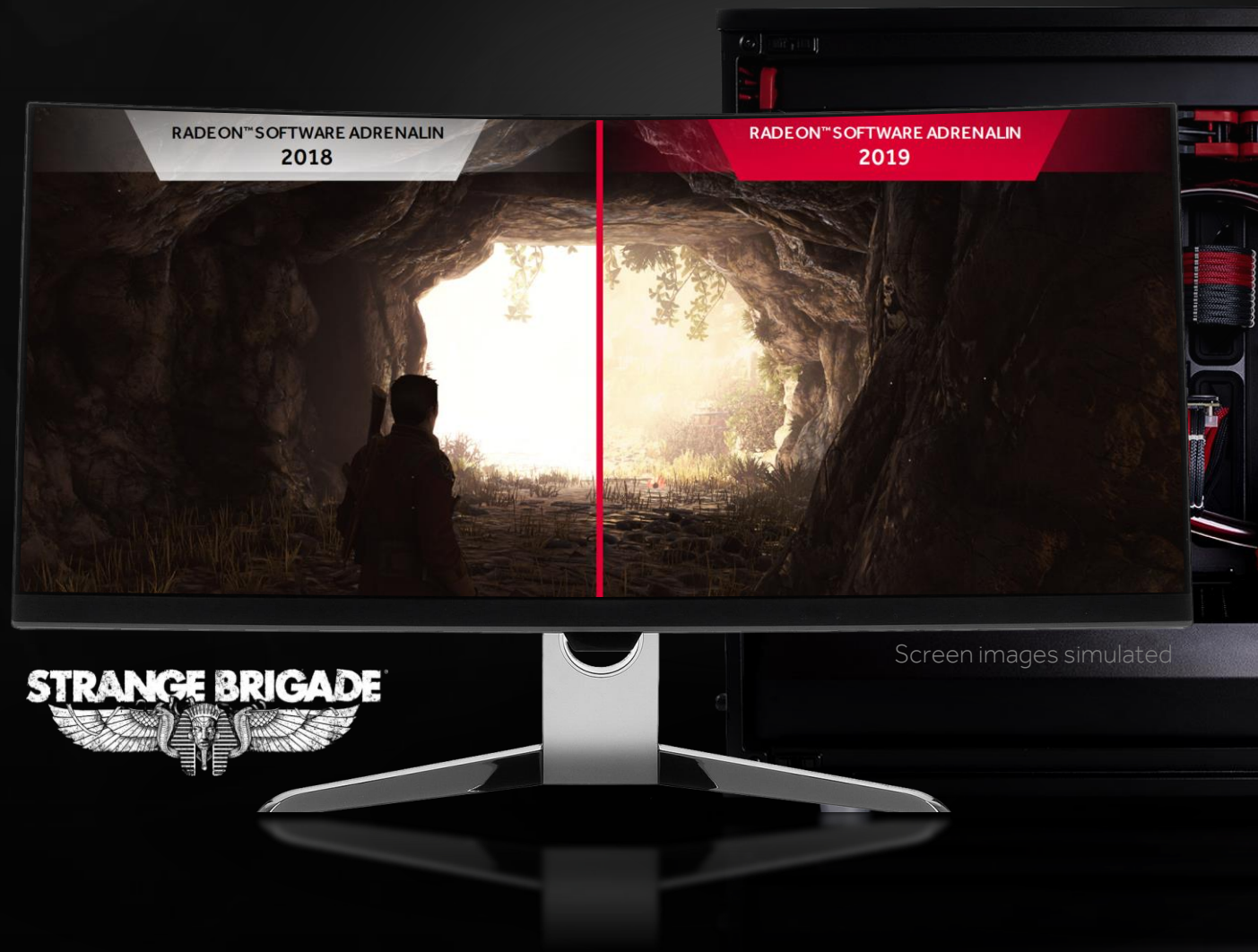
# FreeSync 2 HDR Improvements

Enhanced quality for better gaming

***WHAT'S NEW***

**Enriched visual quality & consistency across displays:**

- Improved Radeon™ FreeSync 2 with auto-tone mapping for a more detailed experience




See endnote GD-105 for details
Compatible with: AMD Radeon™ RX Series dGPU Products. Supports: Windows® 10

#2 VOTED FEATURE BY RADEON USERS*

# Virtual Super Resolution

Greater detail on ultra-wide displays

***WHAT'S NEW***

**Expanded display support**

- Support for ultra-wide 21:9 displays


Screen images simulated

Compatible with: AMD Radeon™ RX Series dGPU Products. Supports: Windows® 7/10
*Wider VSR aspect ratio voted as #2. User feedback obtained on www.Radeon.,com/Feedback as of Nov 22, 2018.

AMD RADEON

# Overlay

Empowering gamers to monitor, record & fine-tune their gameplay without ever leaving their game


Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

#5 VOTED FEATURE BY RADEON USERS*

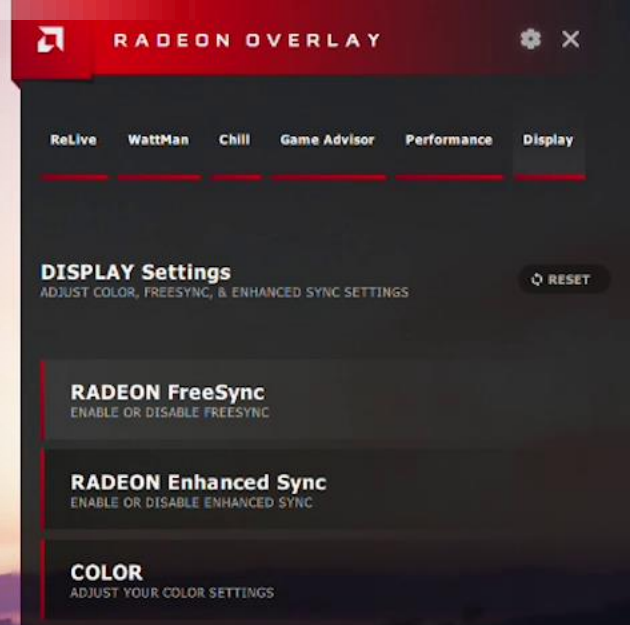
# Display Settings

## Improved in-game display controls

***WHAT'S NEW***

**Centralized all display features in one tab:**

- Enhanced Sync controls for per-game, real-time adjustment *
- Radeon FreeSync ™ controls now found in display tab**
- Improved flexibility with per-game color controls




Compatible with: AMD Radeon™ GCN Products. Supports: Windows® 7/10
*Enhanced Sync controls voted as #5. Feedback obtained on www.Radeon.,com/Feedback as of Nov 22, 2018.
**See GD-127 for more details

#8 VOTED FEATURE BY RADEON USERS**

AMD RADEON

# WattMan*

In-game power and performance optimizations

## *IN-GAME PERFORMANCE TUNING:*

### Controls to Adjust:

- Tuning controls
- GPU frequency
- GPU voltage
- GPU Temperature
- Memory timing
- Memory frequency
- Load and save custom profiles


Radeon™ WattMan controls available for: AMD Radeon™ GCN dGPU Series Products. Supports: Windows® 7/10
*See endnotes for details. GD-108
**AMD Radeon™ WattMan support voted as #8. User feedback obtained on www.Radeon.,com/Feedback as of Nov 22, 2018.

#1, 9, 10 VOTED FEATURE BY RADEON USERS*

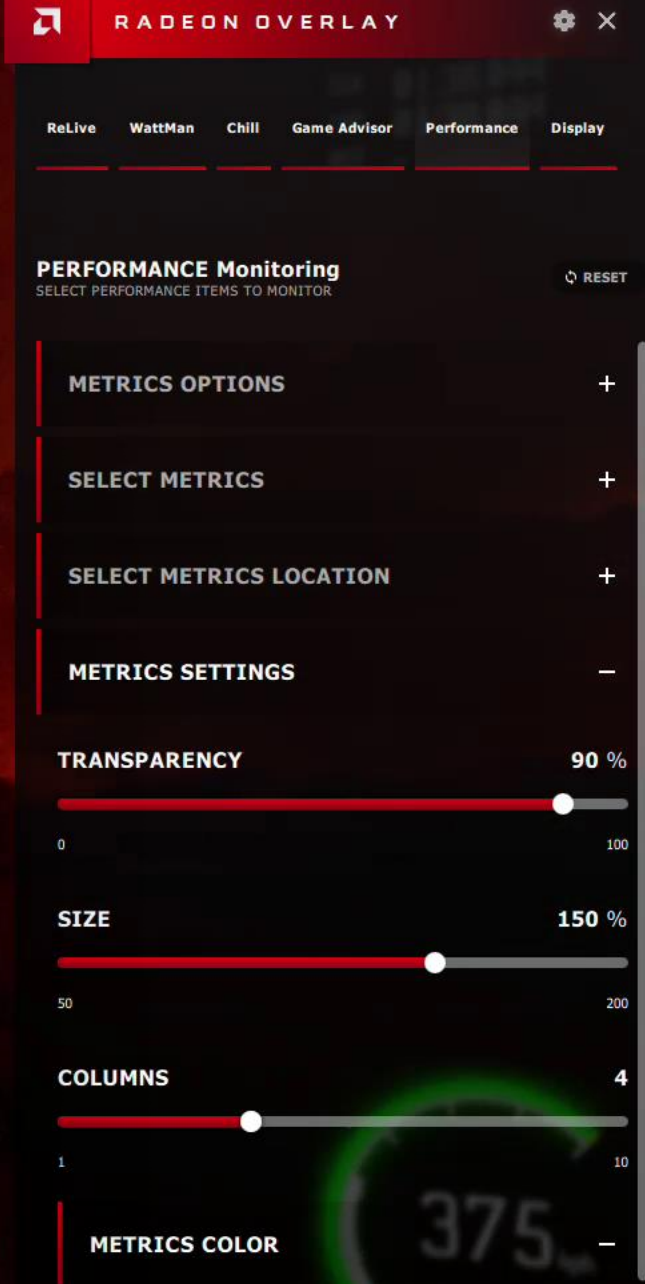
# Refined Performance Metrics

New and personalized insight

***WHAT'S NEW***

**Added Customization Options:**

- Optimize better with frame-time measurements
- Visual customization with adjustable colors, columns, position, transparency & size




Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10
*Performance metrics controls, lower sample interval and frame time logging voted as #1, 9, and 10 most requested feature, respectively . User feedback obtained on www.Radeon..com/Feedback

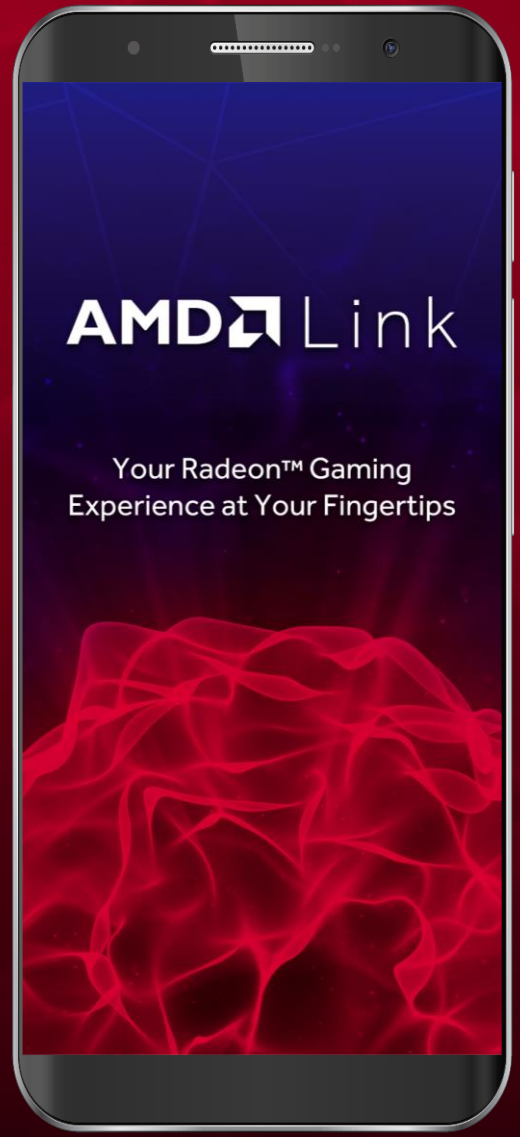

AMD
RADEON
Overlay
Press Alt+R to Enable
RADEON OVERLAY
RADEON ReLive
LIVE STREAMING, RECORD AND CAPTURE SETTINGS
RADEON WattMan
ADVANCED PERFORMANCE SETTINGS
RADEON Chill
DYNAMIC POWER MANAGEMENT
RADEON FRTC
CONTROL FRAMERATES
GAME Advisor
TEST AND TUNE PERFORMANCE
PERFORMANCE Monitoring
SELECT PERFORMANCE ITEMS TO MONITOR
DISPLAY Settings
ADJUST COLOR, FREESYNC, & ENHANCED SYNC SETTINGS
ReLive
WattMan
Chill
FRTC
DISPLAY Settings
DISPLAY 1
PERFORMANCE Monitoring
METRICS OPTIONS
GAME Advisor
Average Frame Rate
113.6
FPS
RADEON FRTC
FRTC
FRTC VALUE
ADJUST YOUR FRAME RATE CAP
RADEON Chill
GLOBAL SETTINGS
Chill
GAME SETTINGS
Chill
Chill MIN
Chill MAX
RADEON WattMan
Performance Wattman
Current Profile - Power Save
Tuning Control
Manual
GPU
Current Speed (MHz) - 1296
Memory
Current Speed (MHz) - 945
Fan
Current Speed (RPM) - 1848
Temperature
Current Temperature (°C) - 70
Load/Save Profiles
RADEON ReLive
SAVE INSTANT REPL
CTRL+SHIFT+S
RECORD
CTRL+SHIFT+R
RECORD REGION
NONE
STREAM
CTRL+SHIFT+G
STREAM REGION
NONE
SCREENSHOT
CTRL+SHIFT+E
SETTINGS
FORZA HORIZON 4
AMD

# AMD Link

Your Radeon™ gaming experience, at your fingertips.

Download on the App Store

GET IT ON Google Play




Requires phone or tablet which supports Android 5.0 and greater or iOS 10 and greater
Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

# Usability

AMD Link has an improved user experience

***WHAT'S NEW***

**Get started faster:**

- Better reliability for a stable connection*
- Get started easily with a redesigned connection process
- Upgrade Radeon™ Software through your phone


*AMD Link reliability improved based on user feedback
Requires phone or tablet which supports Android 5.0 and greater or iOS 10 and greater
Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

*Introducing*

# Voice Control

## Simple voice commands for your GPU

*"Hey Radeon! Take a screenshot."*


Language support: English, Cantonese & Mandarin
Requires phone or tablet which supports Android 5.0 and greater or iOS 10 and greater
Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

# Voice Control

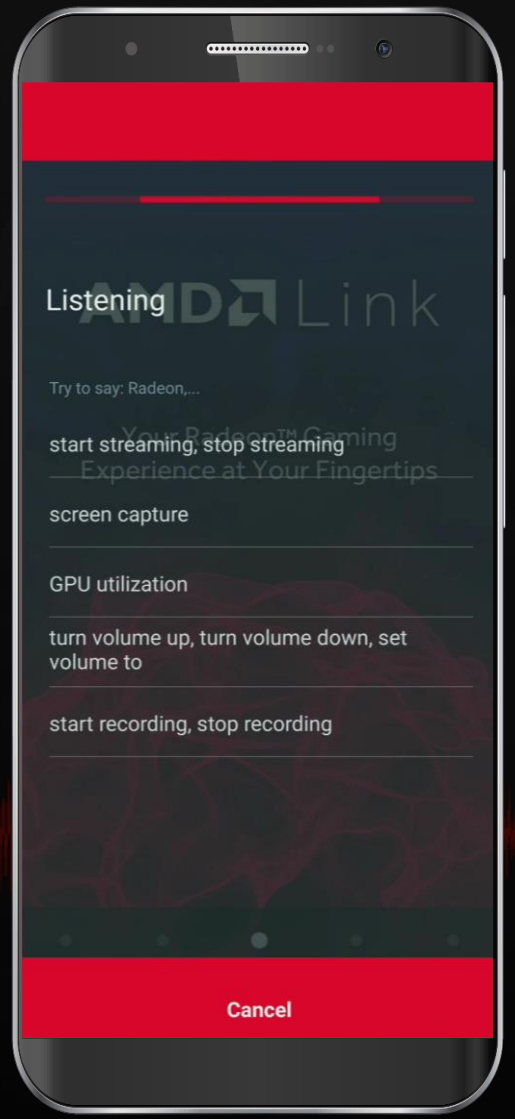
Natural language commands to control Radeon™ ReLive and track performance metrics

***CONTROL YOUR GPU:***

**Voice commands to:**

- Start/Stop streaming
- Start/End recording
- Take a screenshot
- Save instant replay

- Tell me my:
  - Min/Average/Max FPS
  - GPU temperature
  - GPU clocks
  - Memory clocks
  - Fan speed




Language support: English, Cantonese & Mandarin
Requires phone or tablet which supports Android 5.0 and greater or iOS 10 and greater
Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

#7 VOTED FEATURE BY RADEON USERS*

AMD RADEON

# WattMan*

Graphics power & performance management from your mobile device

## *IN-GAME PERFORMANCE TUNING:*

**Controls to Adjust:**

- Tuning controls
- GPU frequency
- GPU voltage
- GPU Temperature
- Memory timing
- Memory frequency
- Load and save custom profiles


Requires phone or tablet which supports Android 5.0 and greater or iOS 10 and greater
Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10
*See endnotes for details. GD-108
**AMD Radeon™ WattMan support voted as #7. User feedback obtained on www.Radeon.,com/Feedback as of Nov 22, 2018.

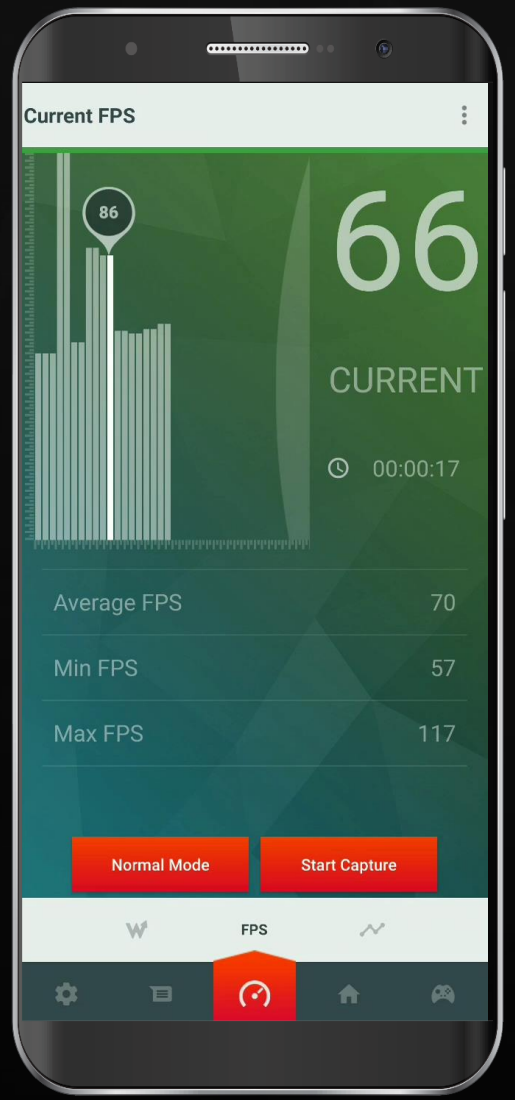
# Enhanced Performance Metrics

Detailed analytics for in-depth GPU insight

***WHAT'S NEW***

**Improved Performance Metrics:**

- Capture average FPS, max FPS and min FPS with the press of a button.




Requires phone or tablet which supports Android 5.0 and greater or iOS 10 and greater
Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

# Expanded Radeon™ ReLive

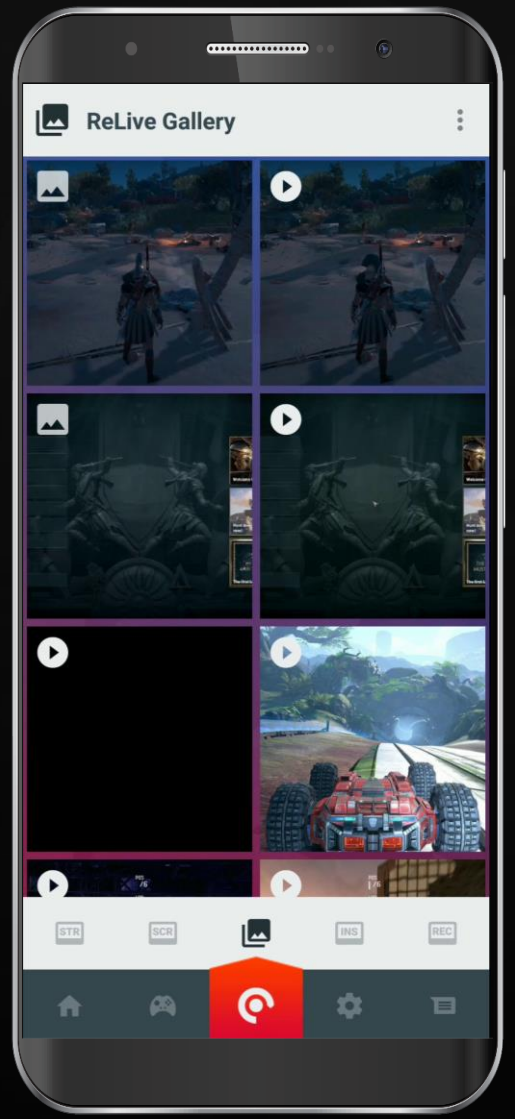
## Manage content on your mobile device

***WHAT'S NEW***

**View, Edit & Stream:**

- View screenshots and play back videos
- Crop and save videos to your mobile device
- View comment feed while streaming to:

YouTube twitch facebook




Use of third party marks / products is for informational purposes only and no endorsement of or by AMD is intended or implied. GD-83
Requires phone or tablet which supports Android 5.0 and greater or iOS 10 and greater
Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

# for CREATORS

AMD RADEON

# ReLive

Capture, stream, and share your greatest gaming moments


Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

*Introducing*

# In-Game Replay

Relive and replay your gaming moments with in-game instant video playback


***REPLAY INCREDIBLE MOMENTS***

**Personalize your playback:**

- An adjustable 5-30 second replay
- Configurable hotkey, playback size and position

Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

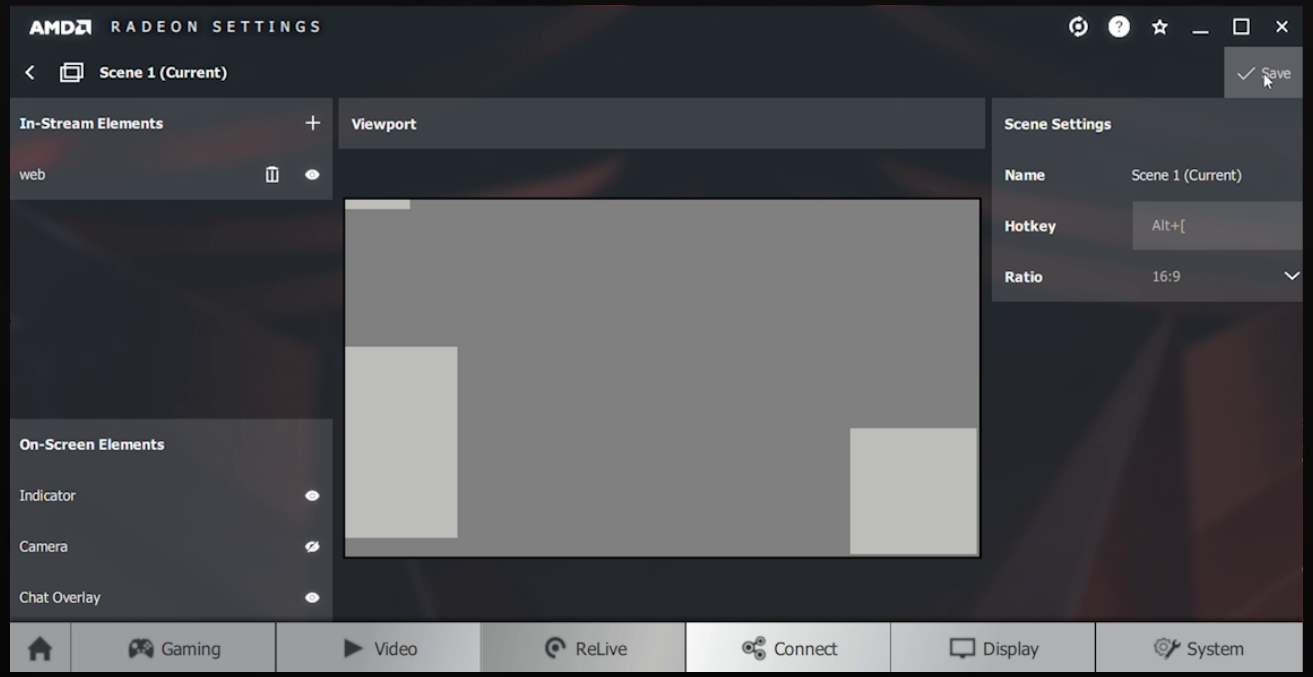
# Scene Editor

More control of your content with live editing

***WHAT'S NEW***

**Produce better streams:**

- Transition between scenes with hotkeys or Radeon™ Overlay
- Create a dynamic streaming overlay




Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

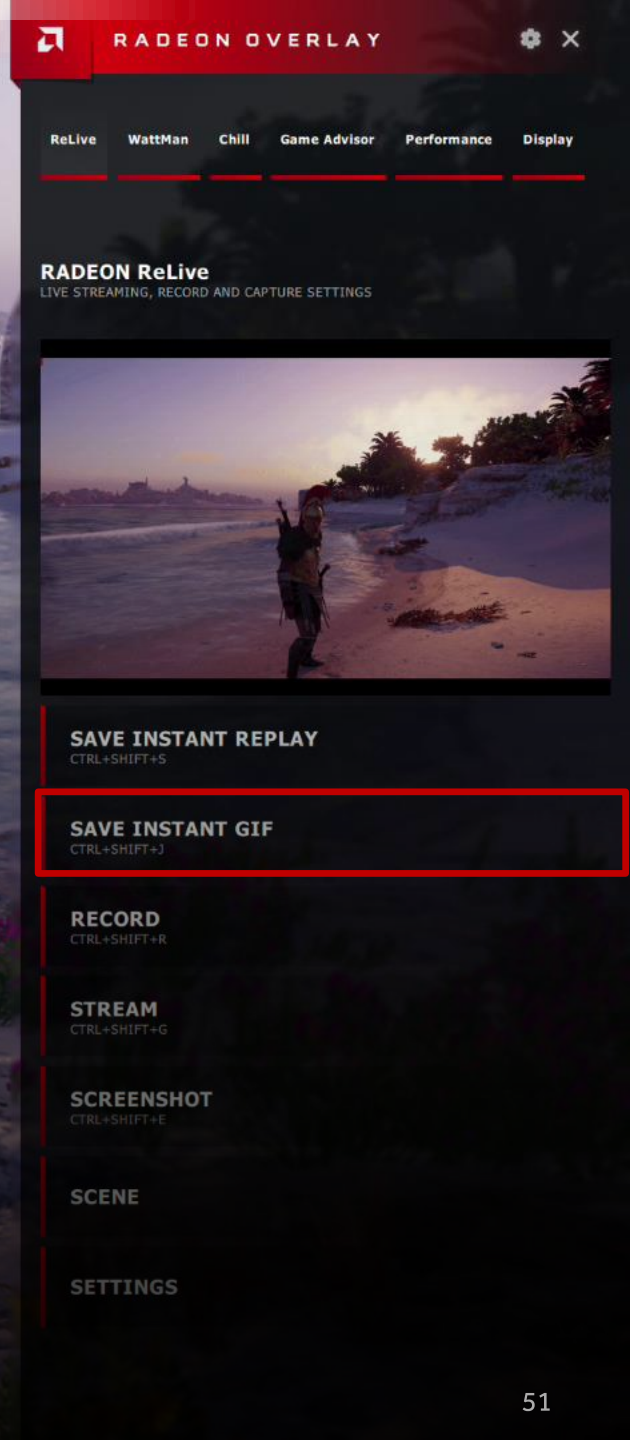
# GIF Support

Share more content with expanded image support

***WHAT'S NEW***

**Share content easily:**

- Capture your most recent gameplay with instant GIFs
- Create a 5-30 second GIF
- Play your GIFs through the gallery
- Upload support for gfycat





Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

# Account Support

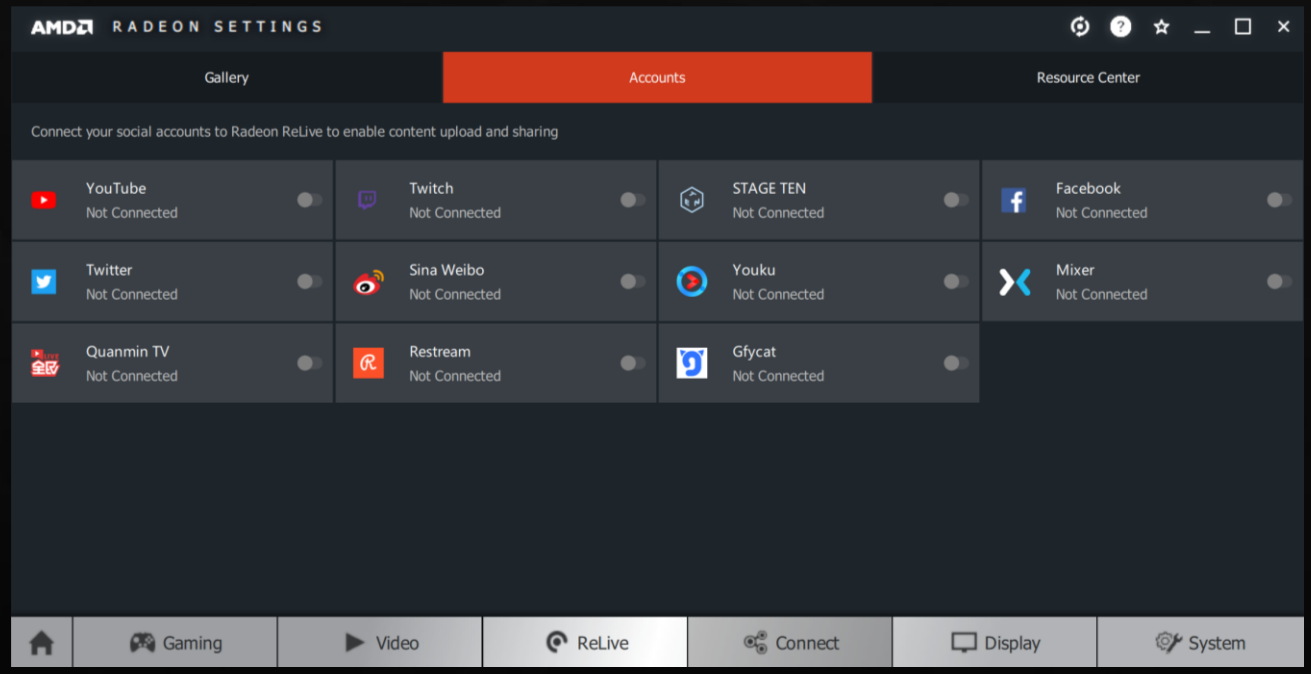
Stream and share expanded with greater platform support

Added support for:

Restream.io
LIVE 全民直播
Streamable
gfycat

Previously supported:

YouTube
twitch
mixer
YOUKU
Custom Stream Key





Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

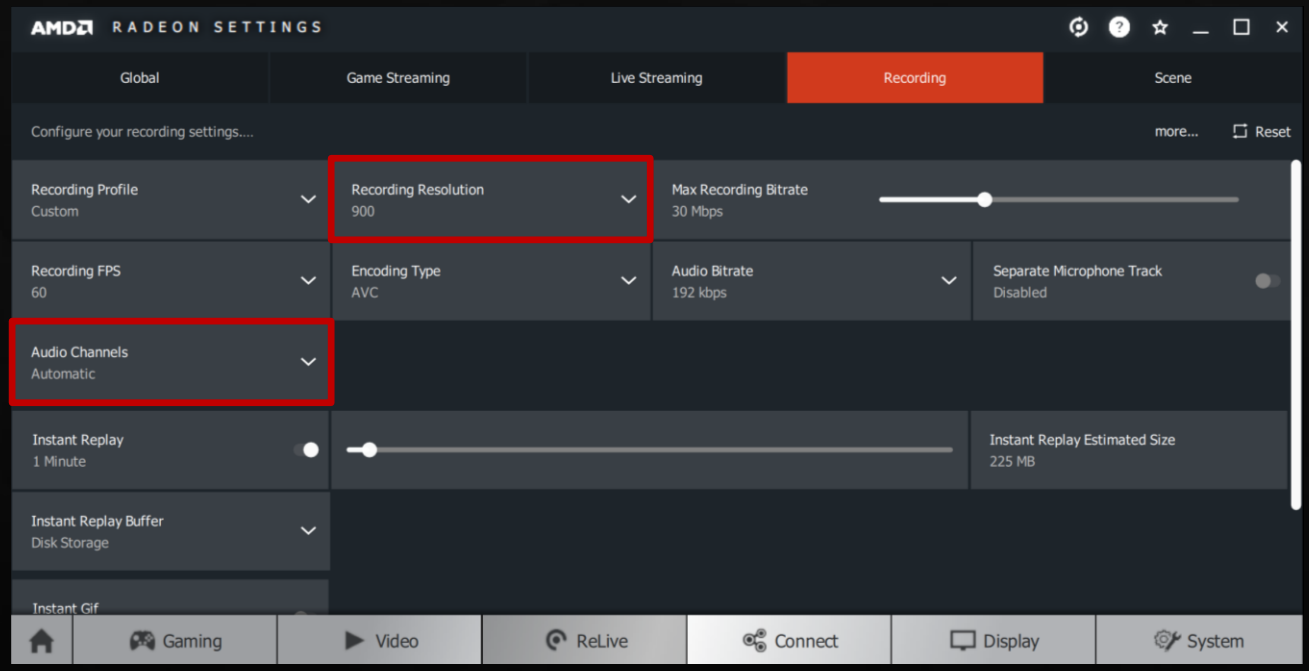
# Improved Customization

Your streams and captures to fit you

***WHAT'S NEW***

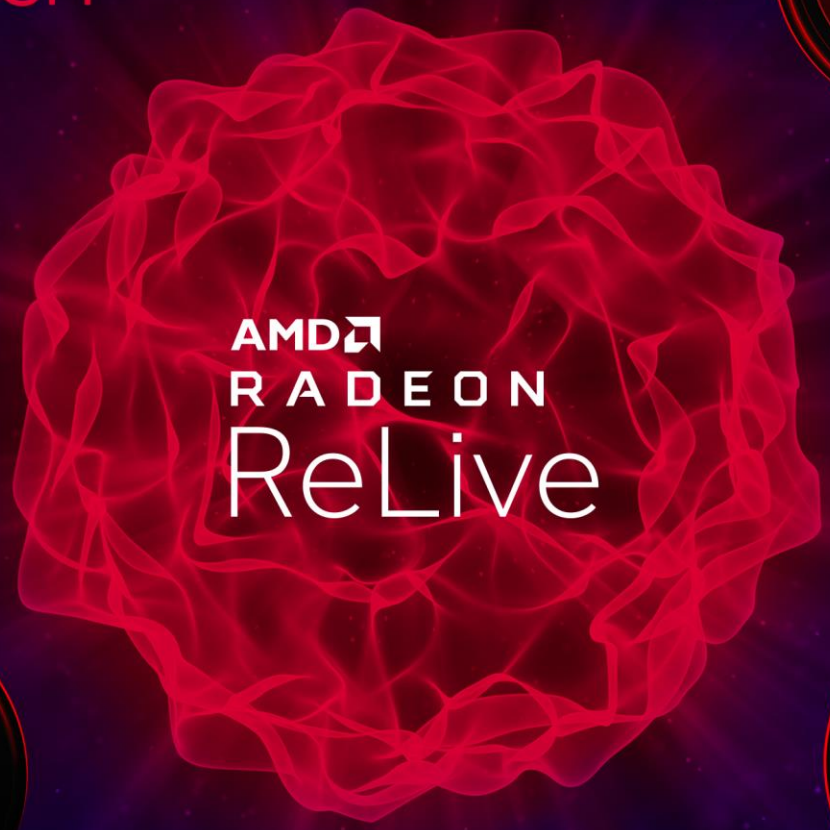
**Expanded control:**

- Stream and capture higher quality audio with multi-channel audio support
- Expanded streaming aspect ratios and resolution to include 16:9, 900p streams




Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

# 5 WAYS TO EXPLORE YOUR ADRENALIN RUSH




IN-GAME REPLAY

**1**

Instantly relive gaming moments in-game

SCENE EDITOR

**2**

Live edit streams and captures with scene transitions & dynamic streaming overlays

GIF SUPPORT

**3**

Share more with expanded image support

ACCOUNT SUPPORT

**4**

Expanded platform support to add Restream, Streamable, Quanmin TV & Gfycat

IMPROVED CUSTOMIZATION

**5**

Capture multi-channel audio and stream with 16:9 and 900p output

AMD

AMD RADEON

# ReLive

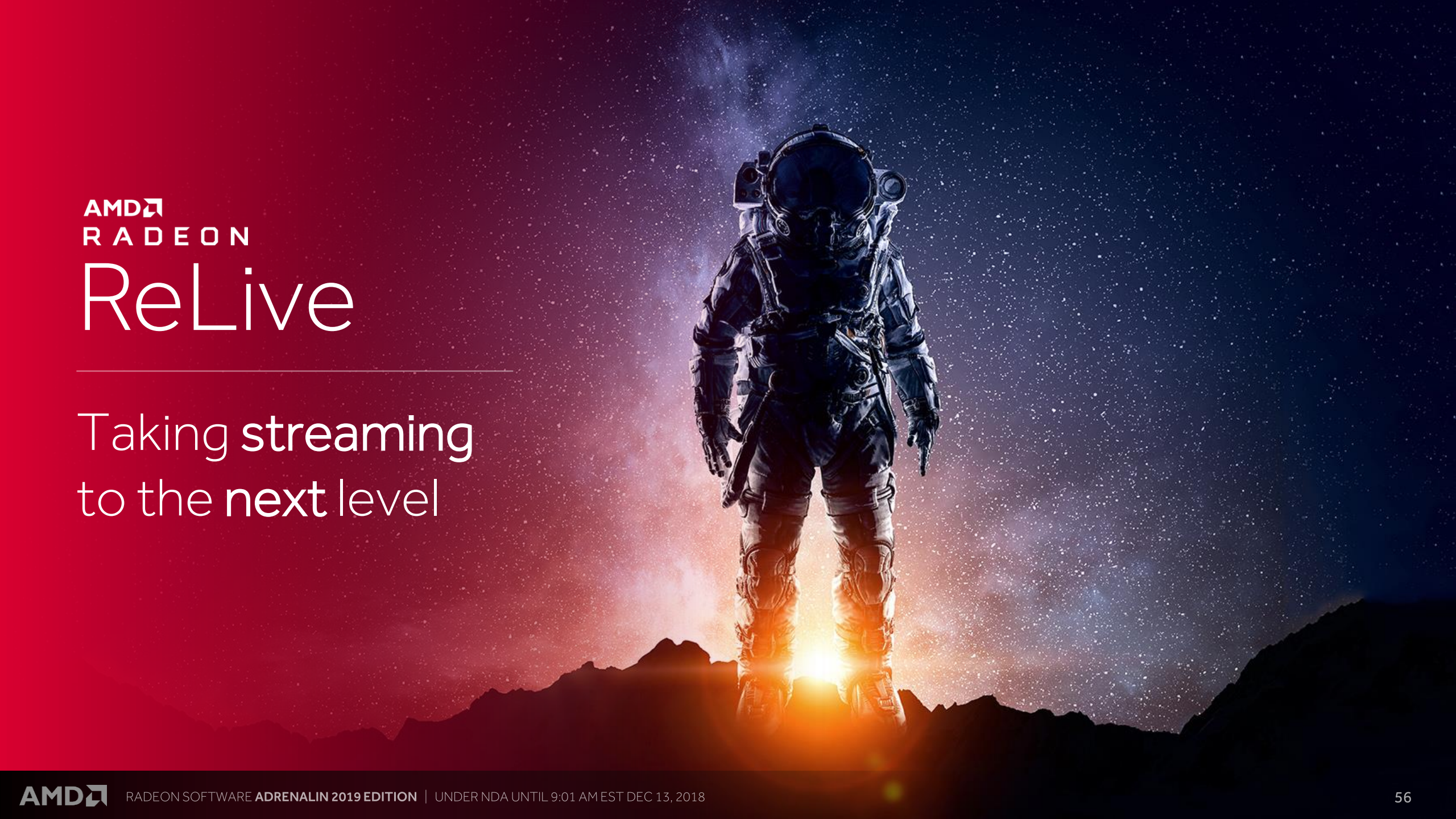
## Built for creators who stream

## But can we take **streaming** further?

AMD
RADEON

# ReLive

Taking **streaming** to the **next** level



AMD RADEON

# ReLive

## Streaming Transformed.

Bringing Radeon™ gaming to mobile devices

*Introducing*

# Game Streaming

Bringing Radeon™ gaming quality to your mobile devices

***WIRELESSLY PLAY YOUR PC GAMES***

- Up to 4K 60 FPS, low latency gaming with hardware acceleration
- Seamlessly transition from your PC to your phone or tablet
- Free, on both Android and iOS devices


AMD Link Available On:

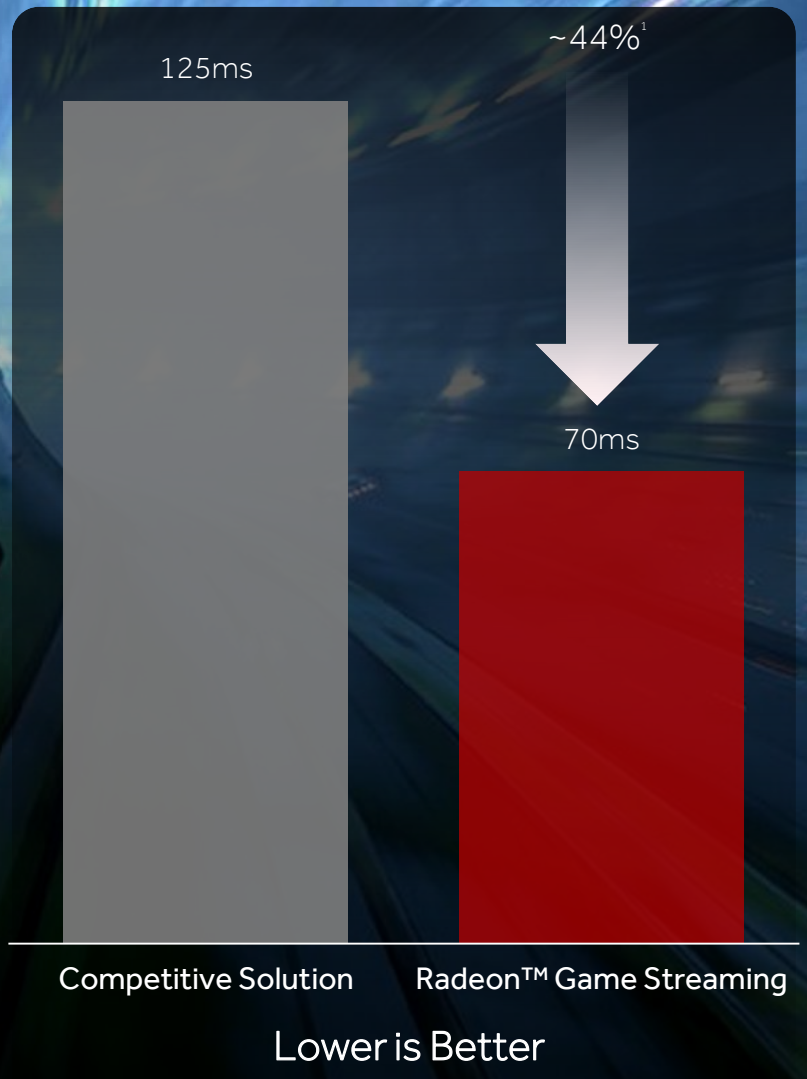
Download on the App Store

GET IT ON Google Play

Requires phone or tablet which supports Android 5.0 and greater or iOS 10 and greater
Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

# Game Streaming

Up to **44%** faster responsiveness than competitive solutions[1]



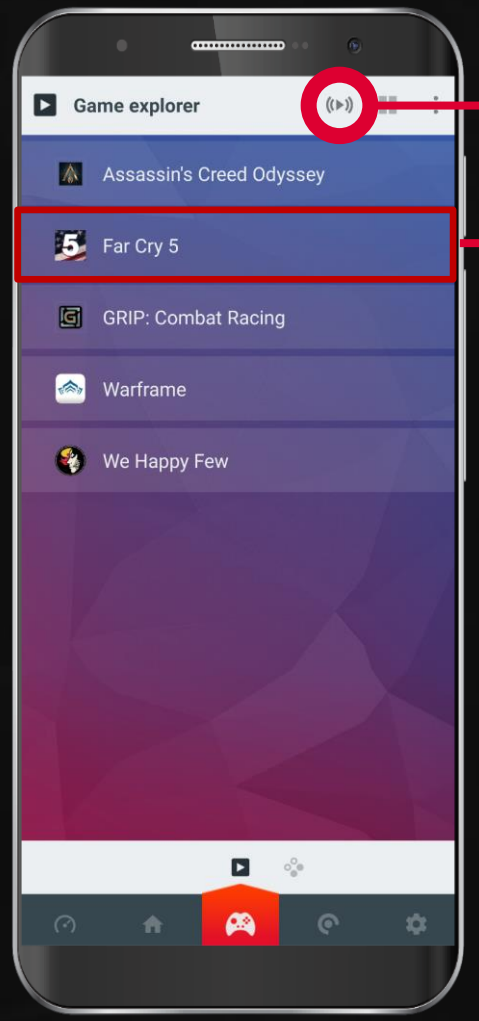

1 – See endnotes for details.
Requires phone or tablet which supports Android 5.0 and greater or iOS 10 and greater
Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

# Effortless Setup

## Intuitive setup with AMD Link

***PLAY ON YOUR PHONE OR TABLET:***

- Pair AMD Link with your PC
- Switch to the game explorer tab on your mobile device
- Either launch a new game, or continue active games on your PC from your mobile device




Simply click the play button to resume gameplay

Or launch a new game from game explorer

AMD Link Available On:

Download on the App Store

GET IT ON Google Play

Requires phone or tablet which supports Android 5.0 and greater or iOS 10 and greater
Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

# Features & Details

## Robust features, built for gaming

***CUSTOMIZE YOUR GAMEPLAY:***

- Use on-screen controls or Bluetooth controllers
- Measure network quality and optimize your stream
- Turn off your PC display while streaming


iOS devices require Mfi-certified controllers
Requires phone or tablet which supports Android 5.0 and greater or iOS 10 and greater
Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

# Desktop Streaming

Bringing Radeon™ graphics application acceleration to mobile devices

***YOUR DESKTOP ON YOUR PHONE:***

- Video quality enhancements with AMD Perfect Picture acceleration
- Up to 4K high quality video playback
- Use productivity applications to continue working on the go

Requires phone or tablet which supports Android 5.0 and greater or iOS 10 and greater
Compatible with: AMD Radeon™ GCN dGPU Products. Supports: Windows® 7/10

AMD RADEON

# ReLive

## Built for creators who stream

## But can we take streaming **even** further?

AMD RADEON

# ReLive

Taking **streaming** to the **next**, **next** level

AMD RADEON

# ReLive for VR

## Streaming Transformed.

Bringing Radeon™ gaming to standalone VR headsets

PC game compatibility depends on headset capability. Please see www.AMD.com/ReLive. Requires HTC Vive Focus or phone and headset which supports Google Daydream (Android 7.0). For VR connectivity, an 802.11ac router or access point is required. Compatible with: AMD Radeon™ RX 470, RX 570, RX 480, RX 580, RX 590 & RX Vega series products. Supports: Windows® 10

*Introducing*

AMD RADEON

# ReLive for VR

Bringing PC quality VR to more devices, wirelessly

***HIGH QUALITY, LOW COST VR***

- Enabling ultra-high PC quality VR experiences on standalone VR devices
- Expanded support to over millions of VR mobile headsets
- Access your catalog of Steam® VR titles*

PC game compatibility depends on headset capability. Please see www.AMD.com/ReLive. Requires HTC Vive Focus or phone and headset which supports Google Daydream (Android 7.0). For VR connectivity, an 802.11ac router or access point is required. Compatible with: AMD Radeon™ RX 470, RX 570, RX 480, RX 580, RX 590 & RX Vega series products. Supports: Windows® 10

SERIOUS SAM VR
THE SECOND ENCOUNTER

# Untethered Connectivity

Radeon™ ReLive reimagined with wireless VR support

***GET STARTED QUICKLY***

- Millions of supported VR devices like HTC Vive Focus, Google Daydream, and many more...
- Streaming enabled through Steam®, & the Steam®VR ecosystem*
- Enable Steam®VR integration in Radeon™ Settings, launch Steam®VR, connect via Radeon™ ReLive for VR & open a game to get started

Radeon™ ReLive for VR Available On:

Viveport

Google Play

PC game compatibility depends on headset capability. Please see www.AMD.com/ReLive. Requires HTC Vive Focus or phone and headset which supports Google Daydream (Android 7.0). For VR connectivity, an 802.11ac router or access point is required. Compatible with: AMD Radeon™ RX 470, RX 570, RX 480, RX 580, RX 590 & RX Vega series products. Supports: Windows® 10

# VR Streaming Optimized

Wireless VR built for high performance gaming

***IMMERSIVE VISUAL EXPERIENCES:***

- Low-level hardware acceleration supports optimized streaming and recording
- Gameplay visuals are tuned for low latency and great experience
- Wireless VR streaming uses the VR capabilities of your headset, for a seamless immersion

PC game compatibility depends on headset capability. Please see www.AMD.com/ReLive. Requires HTC Vive Focus or phone and headset which supports Google Daydream (Android 7.0). For VR connectivity, an 802.11ac router or access point is required. Compatible with: AMD Radeon™ RX 470, RX 570, RX 480, RX 580, RX 590 & RX Vega series products. Supports: Windows® 10

# Features & Details

## Enabling immersive VR experiences

***EXPLORE YOUR VR GAMEPLAY:***

- Third party controller compatibility*
- Immersive gameplay supporting resolutions up to 1440X1440p per eye
- Optimized wireless gaming built from the ground up for VR

PC game compatibility depends on headset capability. Please see www.AMD.com/ReLive. Requires HTC Vive Focus or phone and headset which supports Google Daydream (Android 7.0). For VR connectivity, an 802.11ac router or access point is required. Compatible with: AMD Radeon™ RX 470, RX 570, RX 480, RX 580, RX 590 & RX Vega series products. Supports: Windows® 10

AMD RADEON

# ReLive

Powering Your Wireless
Game Streaming Experience

| Ultra Low | Unrestricted | FREE | Ultra High | Untethered VR | FREE |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| Up to 44% faster responsiveness than competition[1] | Broad Game support[2] with customizable controls | Available on iOS and Android | Up to 1440x1440p immersive gameplay | Wireless Support for Google Daydream, HTC Vive Focus and Many more | Available on Viveport and Googleplay |

Available on the App Store

GET IT ON Google Play

1,2 See endnotes for details

AMD RADEON

# Software Adrenalin 2019 Edition

## PERFORMANCE

Up to 15%

Performance Gains since Radeon™ Software Adrenalin Edition Launch[1]

## FEATURES

23

New or enhanced features

## STABILITY

93% Reliability Score*

AMD's Graphics Driver received a 93% reliability score in 2018 testing.

*In May 2018, AMD commissioned QA Consultants to independently evaluate the stability of several of the latest graphics drivers from both AMD and NVIDIA.

# Industry Analyst Feedback

"Radeon™ Software Adrenalin 2019 Edition, **AMD's best graphics experience to date**, makes it easier for gamers to optimize their graphics settings to tailor their media and entertainment experience. Radeon™ Software Adrenalin 2019 introduces Radeon™ ReLive Wireless VR, a solution that allows users to not only stream and capture gameplay but also play PC games remotely on a phone, tablet or wireless VR device. Streaming, GIF sharing and instant replays are made easy."

- Tim Bajarin – Creative Strategies

CREATIVE STRATEGIES

"Gamers are looking to not only optimize their gaming experiences and take full advantage of the latest GPU hardware, but increasingly they also want to be able share, stream, and relive their gaming sessions. The latest version of Radeon™ Software Adrenalin 2019 packages all that, as well as less expensive access to VR gaming, into a **comprehensive and impressive toolset.**"

- Bob O'Donnell – TECHnalysis Research

# Industry Analyst Feedback

"With Radeon™ Software Adrenalin 2019 Edition, **AMD aims to offer it's customers the best gaming experience possible** on Radeon™ GPUs. With strong performance, improved driver stability and Day-0 software upgrades, gamers can be ready for the latest game releases from the get go. AMD's updated driver, has been built from the ground up to offer advanced customization, performance and image quality enhancement to deliver a more immersive gaming experience."

- Rob Enderle – Enderle Group

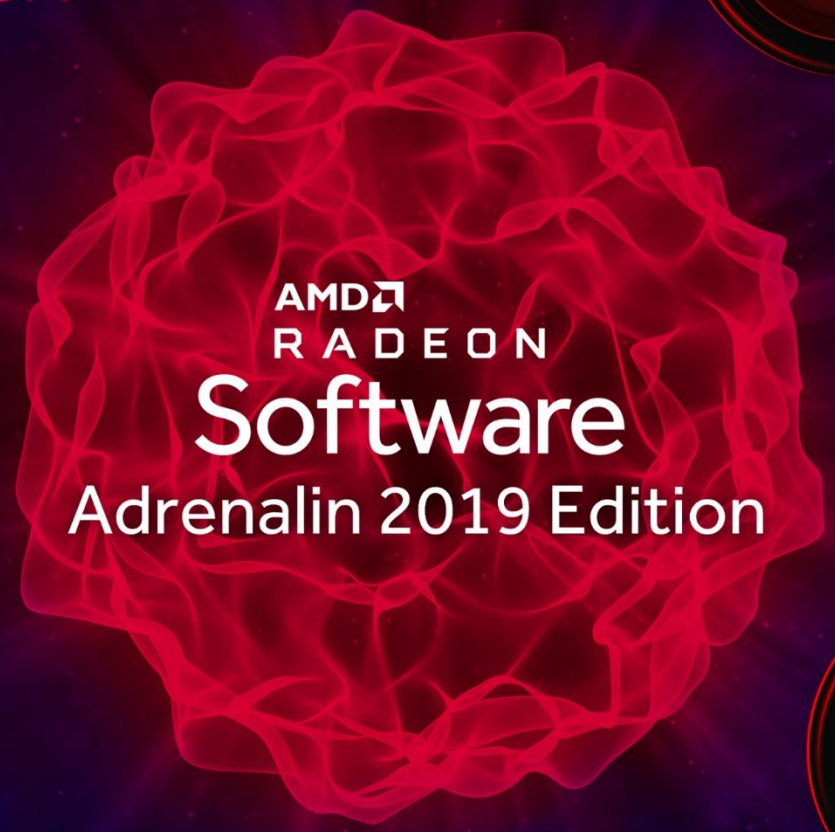
ENDERLE GROUP

"Radeon™ Software Adrenalin 2019 Edition is AMD's newest software tool for PC gamers, creators, and enthusiasts. This latest installment of **Adrenalin unlocks more options and increased features of AMD's Radeon™ GPUs.** Enhanced customization capabilities, like overclocking and creating custom profiles for varying graphics conditions, gives Radeon™ graphics users new levels of adjustment to optimize for performance, power, stability, and image quality."

- Kevin Krewell - TIRIAS Research

TIRIAS RESEARCH

# 5 WAYS TO EXPLORE YOUR ADRENALIN RUSH




GAME AND VR STREAMING

**1**

Evolving Radeon™ ReLive to bring Radeon™ gaming to phones, tablets & mobile VR headsets

AMD LINK

**2**

Improved with better reliability[1], video playback, voice controls & Radeon™ WattMan support

RADEON™ ADVISORS

**3**

Radeon™ Settings Advisor, Radeon™ Game Advisor and upgrade advisor provide guidance to improve your gameplay

VIDEO STREAMING

**4**

Radeon™ ReLive expanded to include an in-game replay, scene editior, GIF support, more social platforms & new stream customizations

AMD RADEON™ WATTMAN[2]

**5**

Enhanced with AMD Link & Radeon™ Overlay support, auto memory/ GPU overclocking, auto GPU undervolting and extended usability

UP TO **15%**[3]

**GREATER** PERFORMANCE IN SELECT TITLES

BUILT ON "THE INDUSTRY'S **MOST STABLE GPU** SOFTWARE"

AMD


Explore Your
Adrenalin Rush

# ENDNOTES

Slide 4:

1. Testing conducted by AMD performance labs. Analyzing software launches, AMD Catalyst Omega Edition gains 11%, Radeon™ Software Crimson Edition gains 9%, Radeon™ Software Crimson ReLive Edition gains 6.4% and Radeon™ Software Adrenalin Edition gains 14.6% comparing driver over driver gains year over year in select key titles at that period. For the four year timespan, AMD drivers have gained an average of 10% performance in these select titles, year over year. See below for more details on each driver. RS-266

    - AMD Catalyst Omega (11%)
        - Intel Core i7 4690X with 16GB DDR3-1866, AMD Radeon™ R9 290X Windows 8.1 64bit comparing launch driver 13.12 vs Driver 14.501. All tests run at 3840x2160. Alien Isolation tested at high with 2xAF scored 42.64 vs 46.89 fps. Batman Arkham Origins @ PHYSX=off GEOMETRYDETAIL=dx11 DYNAMICSHADOWS=dx11 MOTIONBLUR=on DOF=dx11 DISTORTION=on LENSFLARES=on LIGHTSHAFTS=on REFLECTIONS=on AO=dx11 scored 42.85 vs 49.56 fps. COD Ghosts @ imagequality=extra dof=on ssao=hbao terraindetail=on motionblur=on distortion=on shadows=on scored 24.7 fps vs 27.5 fps. Bioshock Infinite @ ultra scored 30.47 vs 36.24 fps. Rome 2 @ Very High scored 43 fps vs 46.8 fps. Sniper Elite 3 @ texturedetail=high motionblur=off quality=high ssaa=0 aalevel=high shadowdetail=high drawdistance=high ambientocclusion=off tessellation=off obscurancefields=off mantle=off scored 61.4 fps vs 67 fps.
    - Radeon Software Crimson Edition (9.0%)
        - AMD Internal Lab testing as of Nov 6, 2015 with an Intel Core i7 5960X with 2x8GB DDR4-2666 MHz memory, Gigabyte X99-UD4, AMD Radeon™ R9 Fury X, Windows 10 64bit. PC manufacturers may vary configurations yielding different results. Games tested using Radeon Software Crimson Edition versus Catalyst 15.10 beta. Scores for Fable Legends at 3840x2160 were 3029 vs 2648. FPS for Ashes of the Singularity at 3840x2160 were 20.5 vs 18. FPS for Assassins Creed Syndicate at 1080p were 55.21 vs 49.03. FPS for Call of Duty: Black Ops 3 at 3840x2160 was 49.58 vs 47.26. Scores for Rainbow 6 Siege at 3840x2160 were 53.28 vs 50.8. Scores for Star Wars Battlefront at 3840x2160 were 48 vs 46.51. RS-9
    - Radeon Software Crimson ReLive Edition (6.4%)
        - Testing conducted by AMD Performance Labs as of November 14th, 2016 on the 8GB Radeon RX 480, on a test system comprising of Intel i7 5960X CPU (3.0 GHz), 16GB DDR4-2666 Mhz system memory, pre-release Radeon Software driver 16.50 or 16.6.2 and Windows 10 x64 using the game Ashes of the Singularity DirectX®12 on the extreme preset. PC manufacturers may vary configurations, yielding different results. At 1920x1080, Radeon Software driver 16.6.2 and 8GB Radeon RX 480 running Ashes of the Singularity DirectX®12 scored 42.8 and pre-release Radeon Software driver 16.50 and 8GB Radeon RX 480 running Ashes of the Singularity DirectX®12 scored 46.2, which is 8% faster performance. Performance may vary based on use of final driver. RS-86
        - Testing conducted by AMD Performance Labs as of November 14th, 2016 on the 8GB Radeon RX 480, on a test system comprising of Intel i7 5960X CPU (3.0 GHz), 16GB DDR4-2666 Mhz system memory, pre-release Radeon Software driver 16.50 or 16.6.2 and Windows 10 x64 using the game Batman Arkham Asylum. PC manufacturers may vary configurations, yielding different results. At 1920x1080 16xAF, Radeon Software driver 16.6.2 and 8GB Radeon RX 480 running Batman Arkham Asylum scored 104.3 and pre-release Radeon Software driver 16.50 and 8GB Radeon RX 480 running Batman Arkham Asylum scored 111.5, which is 7% faster performance. Performance may vary based on use of final drivers. RS-87
        - Testing conducted by AMD Performance Labs as of November 14th, 2016 on the 8GB Radeon RX 480, on a test system comprising of Intel i7 5960X CPU (3.0 GHz), 16GB DDR4-2666 Mhz system memory, pre-release Radeon Software driver 16.50 or 16.6.2 and Windows 10 x64 using the game Deus Ex: Mankind Divided DirectX®12 on the Very High preset. PC manufacturers may vary configurations, yielding different results. At 1920x1080, Radeon Software driver 16.6.2 and 8GB Radeon RX 480 running Deus Ex: Mankind Divided DirectX®12 scored 53.4 and pre-release Radeon Software driver 16.50 and 8GB Radeon RX 480 running Deus Ex: Mankind Divided DirectX®12 scored 55.6, which is 4% faster performance. Performance may vary based on use of final drivers. RS-88
        - Testing conducted by AMD Performance Labs as of November 14th, 2016 on the 8GB Radeon RX 480, on a test system comprising of Intel i7 5960X CPU (3.0 GHz), 16GB DDR4-2666 Mhz system memory, pre-release Radeon Software driver 16.50 or 16.6.2 and Windows 10 x64 using the game Shadow of Mordor on the Max preset. PC manufacturers may vary configurations, yielding different results. At 1920x1080, Radeon Software driver 16.6.2 and 8GB Radeon RX 480 running Shadow of Mordor scored 75.8 and pre-release Radeon Software driver 16.50 and 8GB Radeon RX 480 running Shadow of Mordor scored 80.9, which is 7% faster performance. Performance may vary based on use of final drivers. RS-89
        - Testing conducted by AMD Performance Labs as of November 14th, 2016 on the 8GB Radeon RX 480, on a test system comprising of Intel i7 5960X CPU (3.0 GHz), 16GB DDR4-2666 Mhz system memory, pre-release Radeon Software Crimson Edition driver 16.50 or 16.6.2 and Windows 10 x64 using the game Overwatch on the Epic preset. PC manufacturers may vary configurations, yielding different results. At 1920x1080, Radeon Software driver 16.6.2 and 8GB Radeon RX 480 running Overwatch scored 101.8 and pre-release Radeon Software driver 16.50 and 8GB Radeon RX 480 running Overwatch scored 107.8, which is 6% faster performance. Performance may vary based on use of final drivers. RS-90
    - Radeon Software Adrenalin Edition (14.6%)
        - Testing conducted by AMD Performance Labs as of November 8th, 2017 on the 8GB Radeon RX 480, on a test system comprising of Intel i7 7700X CPU (4.2 GHz), 16GB DDR4-3000 Mhz system memory, and Windows 10 x64. PC manufacturers may vary configurations, yielding different results. With the highest preset on Tom Clancy's Ghost Recon Wildlands, Mass Effect Andromeda, Overwatch, Prey, and Project Cars 2, at 1920x1080, the Radeon RX 480 scored 65.7, 66.8, 152.5, 89.2, and 72.8 FPS respectively with Radeon Software 17.12.1 whereas the Radeon RX 480 scored 58.3, 60.7, 134.1, 75.1, and 62.0 FPS respectively with Radeon Software 16.12.1. Comparing FPS between titles, Radeon Software 17.12.1 gains 13%, 10%, 14%, 19%, and 17%, respectively, averaging up to 15% faster performance over these titles. Performance may vary based on use of latest drivers. RS-192

2. Testing conducted by AMD Performance Labs as of November 8th, 2017 on the 8GB Radeon RX 480, on a test system comprising of Intel i7 7700X CPU (4.2 GHz), 16GB DDR4-3000 Mhz system memory, and Windows 10 x64. PC manufacturers may vary configurations, yielding different results. With the highest preset on Tom Clancy's Ghost Recon Wildlands, Mass Effect Andromeda, Overwatch, Prey, and Project Cars 2, at 1920x1080, the Radeon RX 480 scored 65.7, 66.8, 152.5, 89.2, and 72.8 FPS respectively with Radeon Software 17.12.1 whereas the Radeon RX 480 scored 58.3, 60.7, 134.1, 75.1, and 62.0 FPS respectively with Radeon Software 16.12.1. Comparing FPS between titles, Radeon Software 17.12.1 gains 13%, 10%, 14%, 19%, and 17%, respectively, averaging up to 15% faster performance over these titles. Performance may vary based on use of latest drivers. RS-192

# ENDNOTES

Slide 13:

1. Testing conducted by AMD Performance Labs as of November 18, 2018 on the 4GB Radeon™ RX 570, on a test system comprising of Intel i7 7700k CPU (4.2 GHz), 16GB DDR4-3000 Mhz system memory, and Windows 10 x64. PC manufacturers may vary configurations, yielding different results. Running Assassin's Creed Odyssey(DX11), Battlefield V (DX11), Call of Duty: World War II(DX11), Deus Ex: Mankind Divided(Dx11), F1 2018(Dx11),FarCry 5 (DX11), Kingdom Come: Deliverance, Monster Hunter: World(DX11), Shadow of the Tomb Raider(DX12), Star Control: Origins (DX11) With the ultra-preset (or comparable) at 1920x1080, the Radeon™ RX 570 running 17.12.1 scored 28,62.5,90.7,63.7,58,65,48.1,46.5,51.8,47.3 FPS in titles listed above respectively, while 18.12.2 scored 31,86.7,110.1,67.3,64,70,51.5,52,59.5,58.7 FPS respectively. Therefore, 18.12.1 shows a 11%, 39%, 21%, 6%, 10%, 8%, 7%, 12%, 15%, 24% performance increase respectively. Comparing performance, 18.12. 2 shows up to 15% greater efficiency in select titles, than 17.12.1. Performance may vary based on use of latest drivers. RS-262

Slide 15:

1. Testing conducted by AMD Performance Labs as of November 19th, 2018 on the 8GB Radeon™ RX Vega 64, on a test system comprising of Intel i7 7700k CPU (4.2 GHz), 16GB DDR4-3000 Mhz system memory, and Windows 10 x64. PC manufacturers may vary configurations, yielding different results. PC manufacturers may vary configurations, yielding different results. Running Dota 2 at 4k using Ultra-presets, Fortnite at 1080p Epic-presets and PLAYERUNKNOWN'S BATTLEGROUND at 1080p Ultra-Presets. Each title running 18.3.1 scored 142.9,107.5,111.8 FPS respectively, while 18.12.2 scored 151.1,117.0,119.4 FPS respectively. Showing a 5%, 8%, and 6% increase respectively. Comparing performance, 18.12. 2 shows up to 7% greater performance in select titles, than 18.3.1 Performance may vary based on use of latest drivers. RS-263
2. Testing conducted by AMD Performance Labs as of November 19th, 2018 on the 8GB Radeon™ RX Vega 64, on a test system comprising of Intel i7 7700k CPU (4.2 GHz), 16GB DDR4-3000 Mhz system memory, and Windows 10 x64. PC manufacturers may vary configurations, yielding different results. PC manufacturers may vary configurations, yielding different results. Running Dota 2 at 4k using Ultra-presets, Fortnite at 1080p Epic-presets and PLAYERUNKNOWN'S BATTLEGROUND at 1080p Ultra-Presets. Each title running 18.3.1 scored 8.6,10.4,11.6 99th percentile FPS respectively, while 18.12.2 scored 8.0, 9.7, 11.4 99th percentile FPS respectively. Showing an average decrease of 0.5 ms in 99th percentile frame times RS-264
3. Testing conducted by AMD Performance Labs as of November 19th, 2018 on the 8GB Radeon™ RX Vega 64, on a test system comprising of Intel i7 7700k CPU (4.2 GHz), 16GB DDR4-3000 Mhz system memory, and Windows 10 x64. PC manufacturers may vary configurations, yielding different results. PC manufacturers may vary configurations, yielding different results. Running Dota 2 at 4k using Ultra-presets, Fortnite at 1080p Epic-presets and PLAYERUNKNOWN'S BATTLEGROUND at 1080p Ultra-Presets. Each title running 18.3.1 scored 150.6,76.9,66.8 Latency (ms) respectively while 18.12.2 scored 43.2,61.5,64.0 latency (ms) respectively. Comparing performance, 18.12. 2 shows up to an 8.5 ms decrease in latency in select titles, than 18.3.1 Performance may vary based on use of latest drivers. RS-265

# ENDNOTES

Slide 31:

1. Testing conducted by AMD Performance Labs as of November 15th, 2018 on the 8GB Radeon™ RX Vega 64, on a test system comprising of Intel i7 7700k CPU (4.2 GHz), 16GB DDR4-3000 MHz system memory, and Windows 10x64. PC manufacturers may vary configurations, yielding different results.With the Epic-preset on Fortnite at 1920 x 1080, the Radeon™ RX Vega 64 consumed 242 watts with Radeon™ Chill enabled on Radeon™ Software 18.12.2, 281 watts with Radeon™ Chill disabled on Radeon™ Software 18.12.2, and 281 watts with Radeon™ Chill enabled on Radeon™ Software 17.12.1. With the Epic-preset on Overwatch at 1920 x 1080, the Radeon™ RX Vega 64 consumed 180 watts with Radeon™ Chill enabled on Radeon™ Software 18.12.2, 284 watts with Radeon™ Chill disabled on Radeon™ Software 18.12.2, and 221 watts with Radeon™ Chill enabled on Radeon™ Software 17.12.1.With the ultra-preset on PLAYERSUNKNOWN'S BATTLEGROUND at 1920 x 1080, the Radeon™ RX Vega 64 consumed 163 watts with Radeon™ Chill enabled on Radeon™ Software 18.12.2, 269 watts with Radeon™ Chill disabled on Radeon™ Software 18.12.2, and 227 watts with Radeon™ Chill enabled on Radeon™ Software 17.12.1.Comparing power consumption between Radeon Software 18.12.2 with Radeon™ Chill ON vs. OFF, power consumption decreases by 14%, 37% and 40% in Fortnite, Overwatch and PLAYERUNKNOWS BATTLEGROUNDS, respectively, with Radeon™ Chill enabled.When comparing power consumption between the default Radeon™ Software 18.12.2 Radeon™ RX Vega 64 power consumption and Radeon™ Software 17.12.1 with Radeon™ Chill enabled, Radeon™ Chill lowers power consumption by 0%, 22% and 20% in Fortnite, Overwatch and PLAYERUNKNOWS BATTLEGROUNDS, respectively, with Radeon™ Chill enabled.When comparing between Radeon Chill ON vs. OFF between Radeon™ Software 18.12.2 and 17.12.1, Radeon™ Chill lowers power consumption by up to 14%, 14%, and 20% more power in Fortnite, Overwatch and PLAYERUNKNOWS BATTLEGROUNDS, respectively, with Radeon™ Software 18.12.2.Performance may vary based on use of latest drivers. RS-261

Slide 59:

1. Testing conducted by AMD Performance Labs as of November 13th, 2018 on the 8GB Radeon™ RX Vega 64, on a test system comprising of Intel i7 7700K CPU (4.2 GHz), 16GB DDR4 memory, and Windows 10x64.Android tablet config: 8" tablet running Android 7.0, 1920x1200 LCD display, 2GB RAM, Tegra K1 SoC, 16GB storage, 802.11n 5GHz WiFi. PC & mobile device manufacturers may vary configurations, yielding different results. With click to response, on the same system AMD Link had a median latency of 70 ms from click to response while competing solution (Steam Link) had a median latency of 125 ms from click to response creating a 55 ms (44%) faster response time while game streaming with AMD Link. Performance may vary based on use of latest drivers. RS-260

Slide 70:

1. Testing conducted by AMD Performance Labs as of November 13th, 2018 on the 8GB Radeon™ RX Vega 64, on a test system comprising of Intel i7 7700K CPU (4.2 GHz), 16GB DDR4 memory, and Windows 10x64.Android tablet config: 8" tablet running Android 7.0, 1920x1200 LCD display, 2GB RAM, Tegra K1 SoC, 16GB storage, 802.11n 5GHz WiFi. PC & mobile device manufacturers may vary configurations, yielding different results. With click to response, on the same system AMD Link had a median latency of 70 ms from click to response while competing solution (Steam Link) had a median latency of 125 ms from click to response creating a 55 ms (33%) faster response time while game streaming with AMD Link. Performance may vary based on use of latest drivers. RS-260
2. PC game compatibility depends on headset capability. Please see www.AMD.com/ReLive for more details

Slide 71:

1. Testing conducted by AMD Performance Labs as of November 18, 2018 on the 4GB Radeon™ RX 570, on a test system comprising of Intel i7 7700k CPU (4.2 GHz), 16GB DDR4-3000 Mhz system memory, and Windows 10 x64. PC manufacturers may vary configurations, yielding different results. Running Assassin's Creed Odyssey(DX11), Battlefield V (DX11), Call of Duty: World War II(DX11), Deus Ex: Mankind Divided(Dx11), F1 2018(Dx11),FarCry 5 (DX11), Kingdom Come: Deliverance, Monster Hunter: World(DX11), Shadow of the Tomb Raider(DX12), Star Control: Origins (DX11) With the ultra-preset (or comparable) at 1920x1080, the Radeon™ RX 570 running 17.12.1 scored 28,62.5,90.7,63.7,58,65,48.1,46.5,51.8,47.3 FPS in titles listed above respectively, while 18.12.2 scored 31,86.7,110.1,67.3,64,70,51.5,52,59.5,58.7 FPS respectively. Therefore, 18.12.1 shows a 11%, 39%, 21%, 6%, 10%, 8%, 7%, 12%, 15%, 24% performance increase respectively. Comparing performance, 18.12. 2 shows up to 15% greater efficiency in select titles, than 17.12.1. Performance may vary based on use of latest drivers. RS-262

# ATTRIBUTION

## DISCLAIMERS

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FreeSync 2 HDR does not require HDR capable monitors; driver can set monitor in native mode when FreeSync 2 HDR supported HDR content is detected. Otherwise, HDR content requires that the system be configured with a fully HDR-ready content chain, including: graphics card, graphics driver and application. Video content must be graded in HDR and viewed with an HDR-ready player. Windowed mode content requires operating system support. GD-105

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AMD Radeon FreeSync requires a monitor and AMD Radeon™ graphics, both with FreeSync support. Seewww.amd.com/freesync for complete details. Confirm capability with your system manufacturer before purchase. GD-127