



# Realistic and Interactive Clothing in Epic Games “Samaritan” Demo using NVIDIA APEX

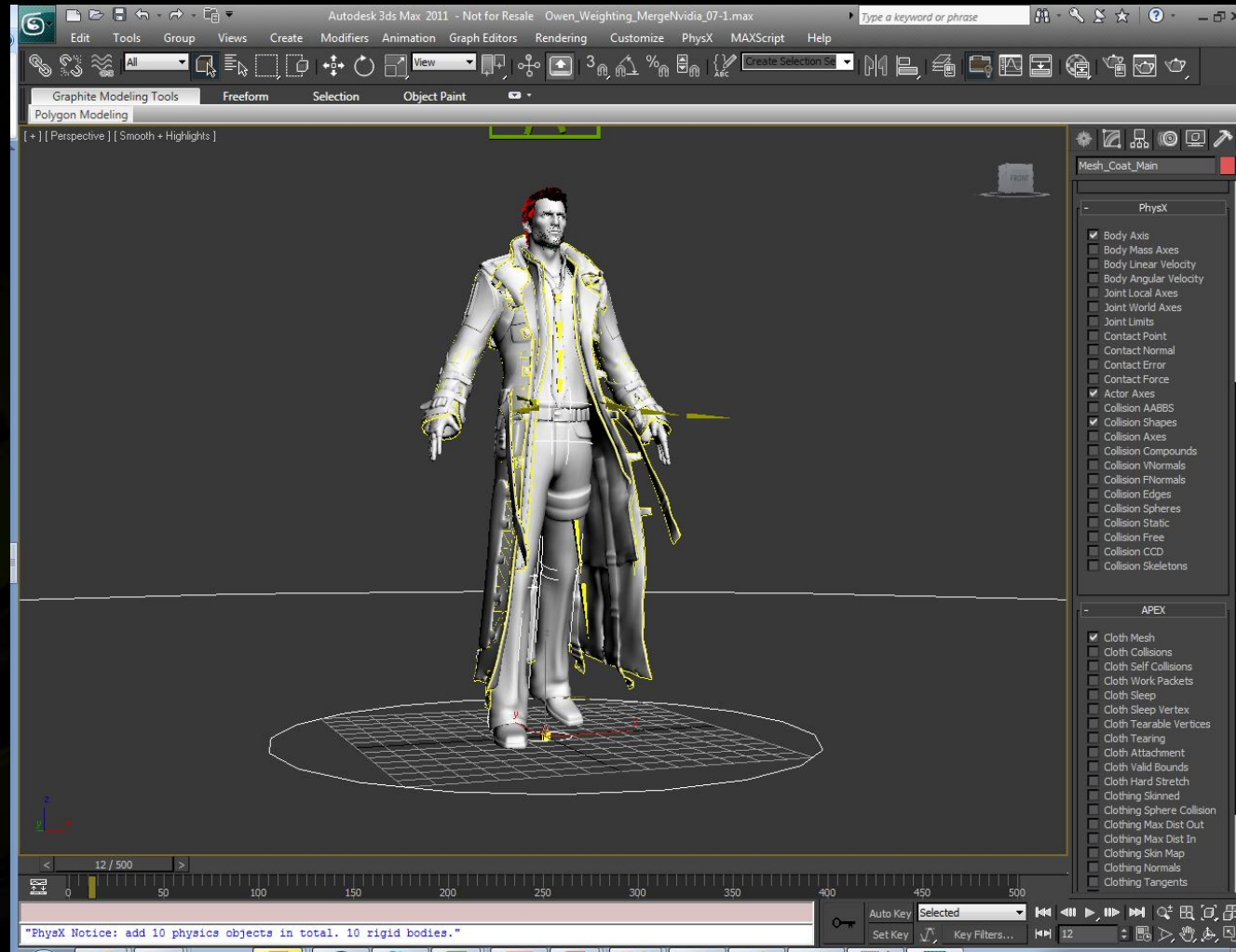
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# Overview

- **Clothing Authoring in 3ds Max (live)**
  - Clothing tool workflow (trenchcoat)
- **Clothing in the Samaritan Demo (live)**
  - Clothing requirements
  - Hero's trenchcoat in UE3
  - APEX Debug Visualization in UE3
- **Additional APEX Modules**
  - APEX Overview
  - APEX Destruction
  - APEX Particles
  - APEX Turbulence
- **Q & A**

# Clothing Authoring in 3dsMax





# Hero's Trenchcoat



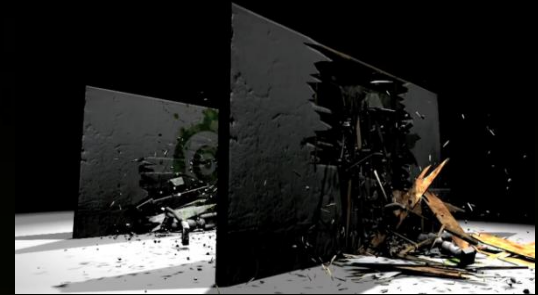
# Clothing in Samaritan Demo



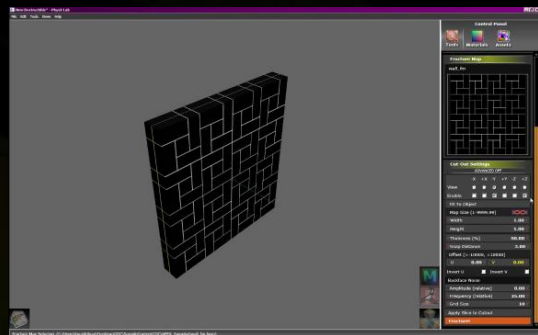
# So, what is APEX ?



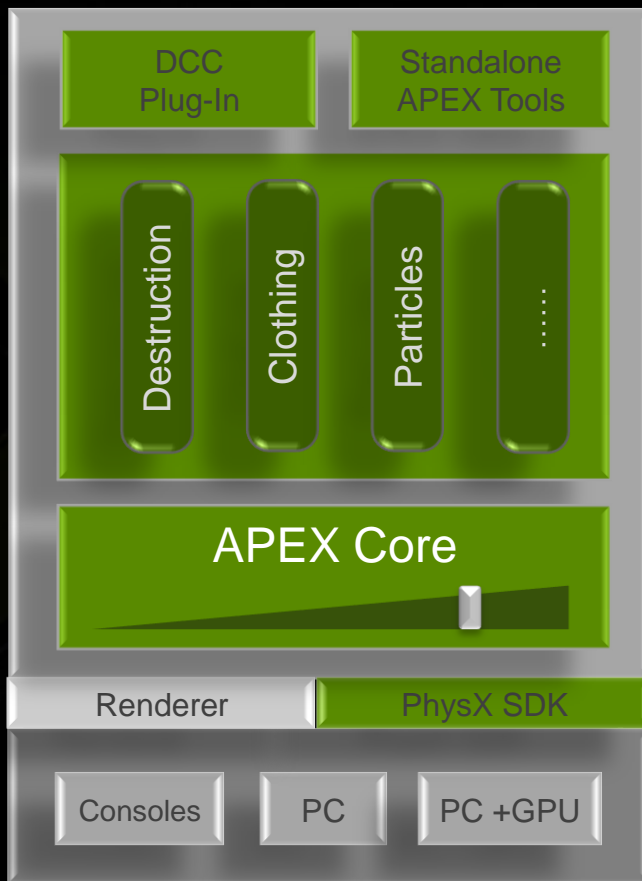
- **APEX is a “Scalable Dynamics Framework”**
  - *Scalable*: Content adapts to different hardware capabilities
  - *Dynamics*: The way things move and interact
  - *Framework*: A structured environment
- **APEX consists of two major components:**
  - **Authoring:**
    - High-level authoring of dynamic systems
    - DCC plugins, standalone tools, and game engine plug-ins
  - **Runtime:**
    - A modular SDK – minimal integration into game engine
    - Leverages PhysX for simulations



# APEX Architecture



Authoring

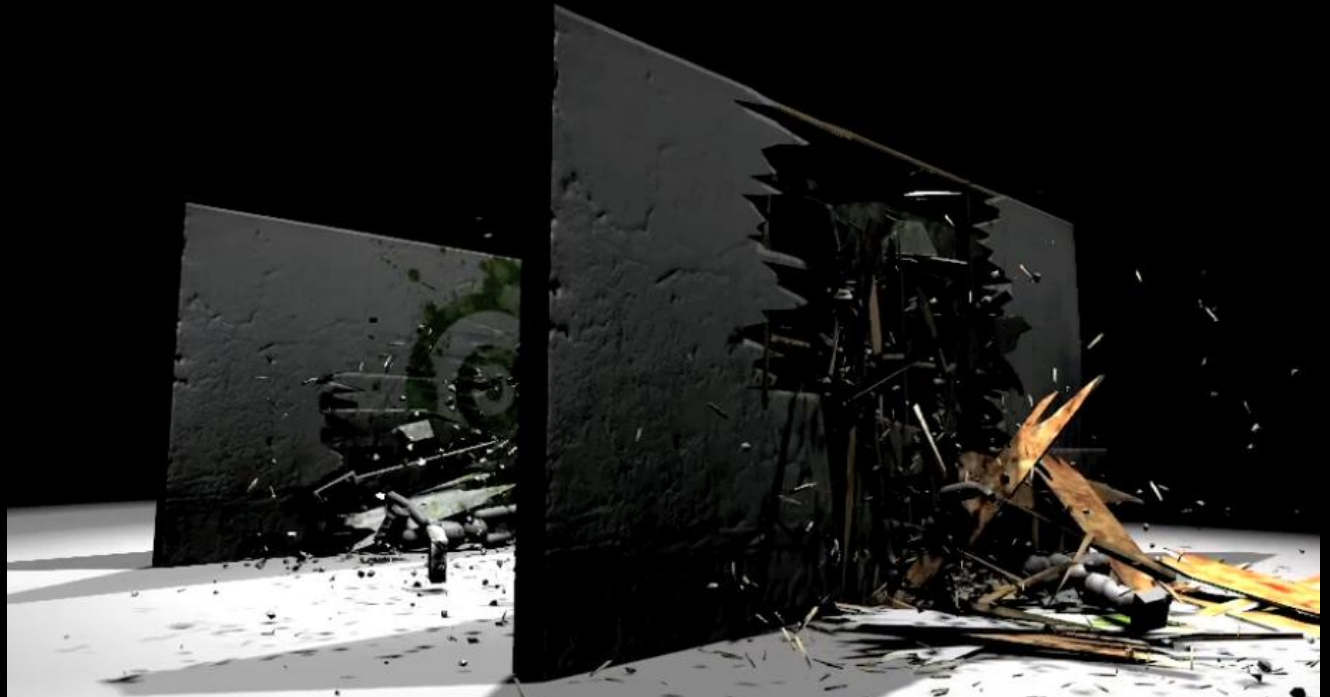


Run-time



# APEX Destruction

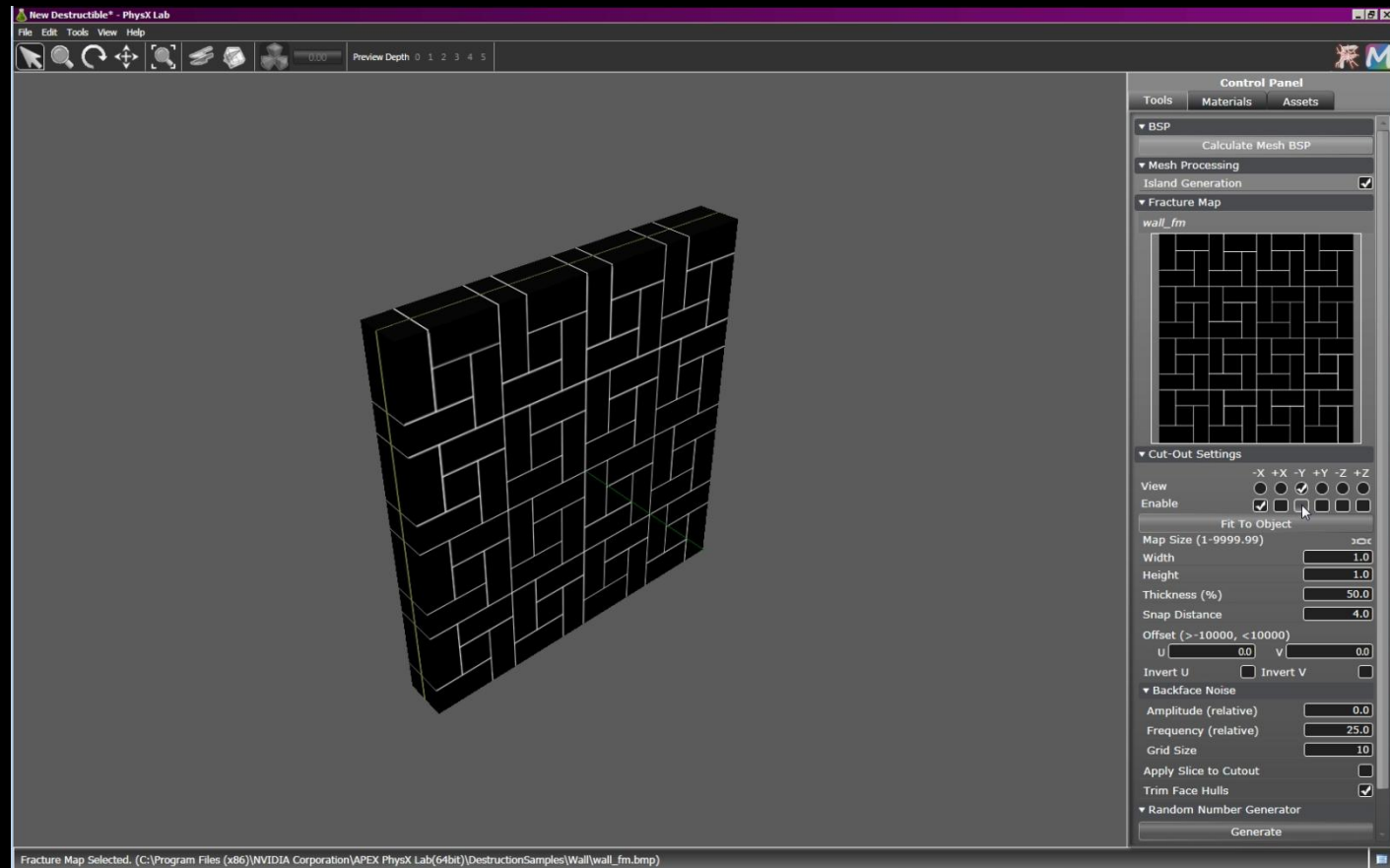
- Fully and partial destructible environments
- PhysXLab tool with preview functionality
- Fully integrated with APEX Particles
- Fracture with noise
- Hierarchical destruction
- Plastic deformation
- Level of Detail
- Scalability





# APEX Destruction

## Authoring Pipeline



# APEX Destruction

Realtime example of authored destruction asset



# APEX Destruction

Massive Destruction





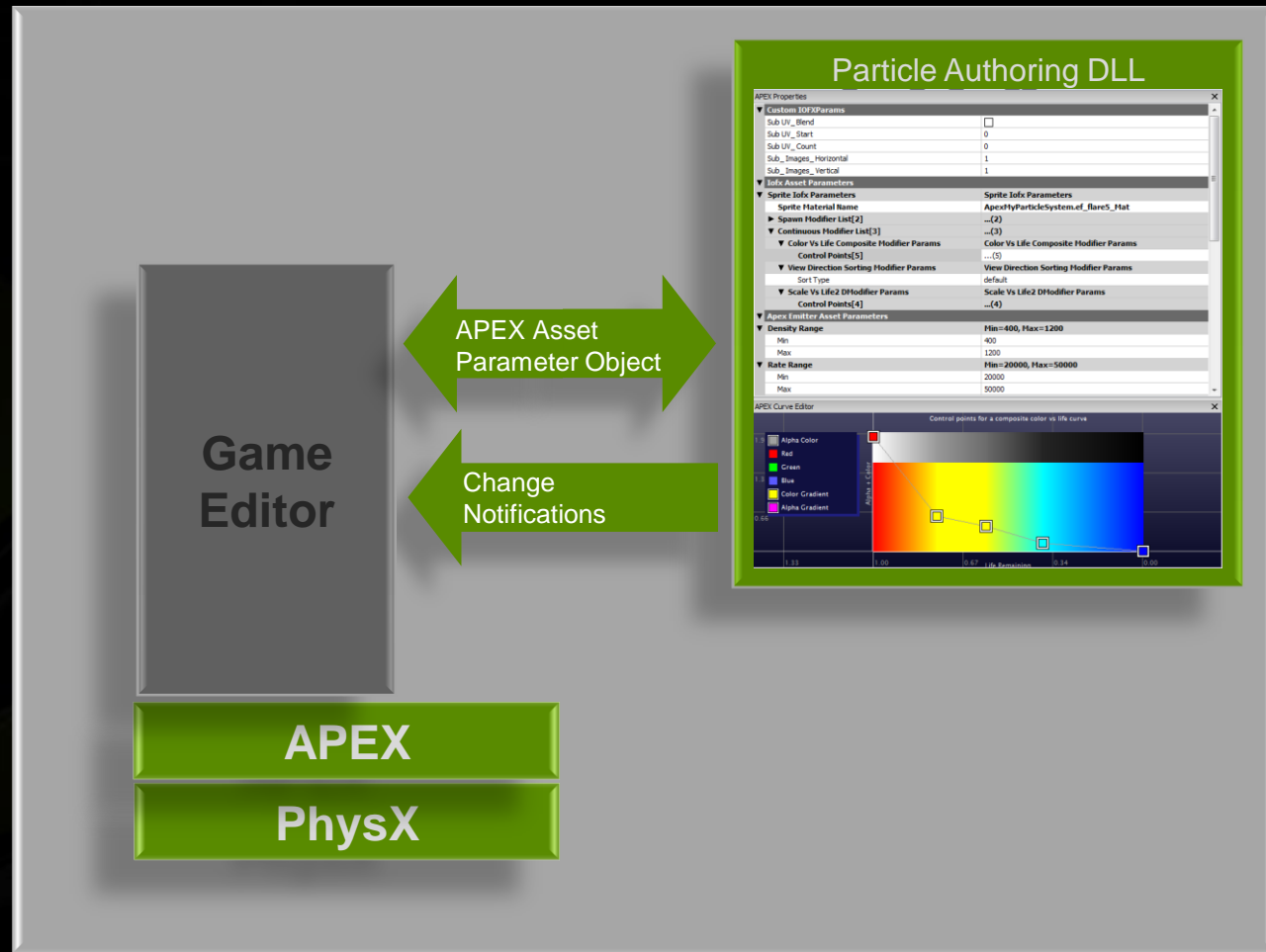
# APEX Particles

- Full Collision with PhysX environment
- Force fields (wind, explosions)
- Authorable behavior and effect modifiers
- Renderable as sprites or meshes (with orientation)
- Generic emitter
- Special purpose emitters
  - Air/Ground emitter
  - Weapon emitter



# APEX Particles

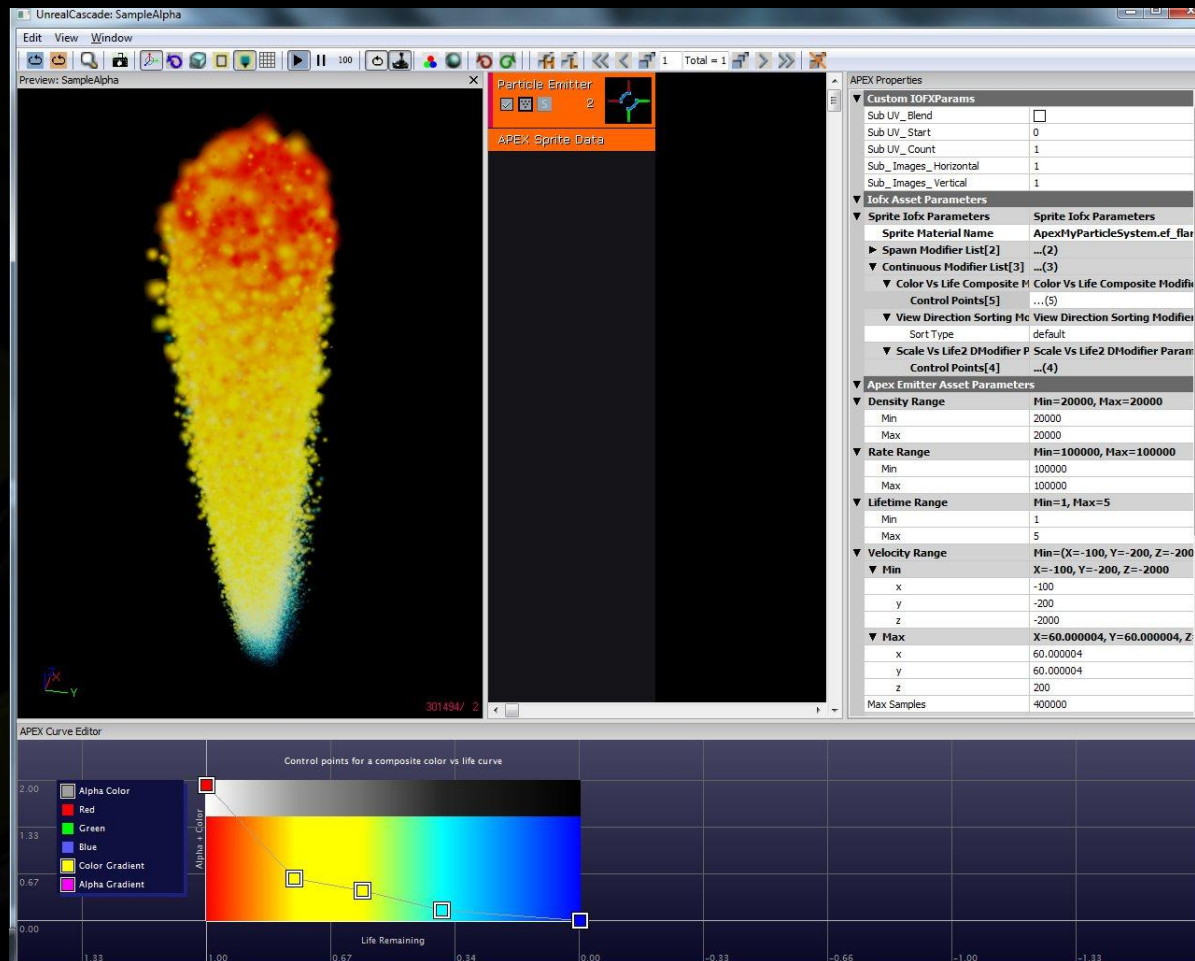
## Particle Authoring DLL



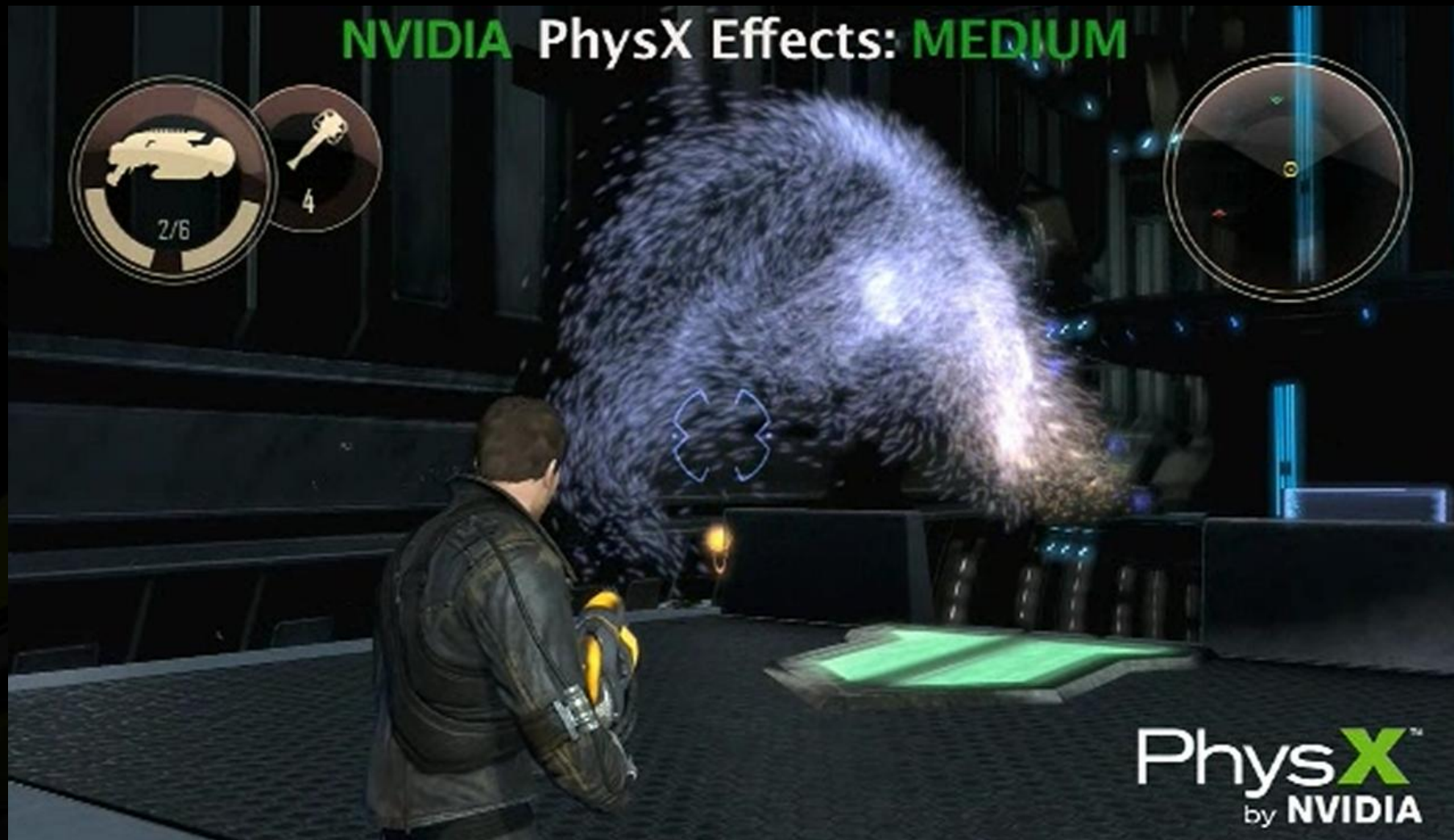


# APEX Particles

## Particle Authoring DLL in UE3



# APEX Turbulence



# From where can I get APEX ?

Register at NVIDIA Developer Zone and  
request access for APEX SDK and APEX Tools

<http://developer.nvidia.com/object/apex.html>



Questions ?

# NVIDIA @ GDC 2011



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