



THE PANDORA'S BOX OF MODDING IN 'ARMA' GAMES

Karel Mořický

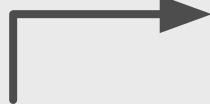


ABOUT ME



- ▶ Lead Designer at *Bohemia Interactive*
- ▶ Based in Amsterdam, NL
- ▶ Developer since 2006
- ▶ Modder since 2001 (age 13)
- ▶ Currently creating a game on new in-house *Enfusion* engine

INSPIRATION



FORTNITE

PLAYERUNKNOWN'S
BATTLEGROUNDS

SUCCESSOR

PLAYERUNKNOWN'S
BATTLE ROYALE

SUCCESSOR

H1Z1
KING OF THE KILL

VBS1

TRAINING
SIMULATOR

ARMA
COLD WAR ASSAULT

SEQUEL

ARMA II

MOD

ARMA

SEQUEL

MOD

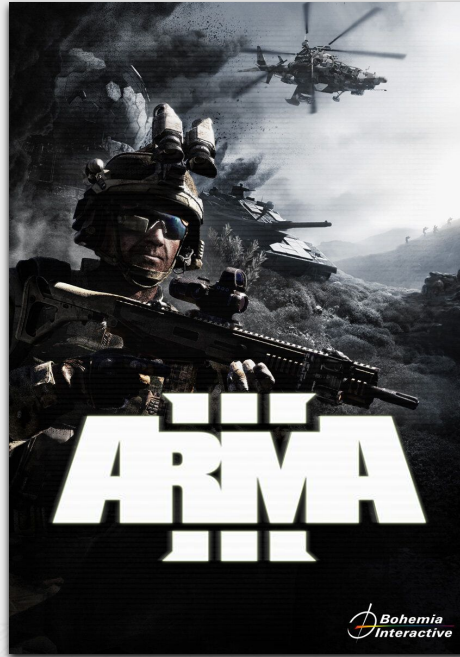
DAYZ

MOD

Authentic military
sandbox game

Sequel in
long-running series

Runs on in-house
Real Virtuality
engine



PC and Steam
exclusive

Singleplayer and
Multiplayer

8 years old, but still
has ~500k monthly
active users

Still alive largely thanks to
MODDING



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MODS ARE AMAZING!

Thanks to **MOD**s, the game lives longer

Total conversion **MOD**s as well as small tweaks

MODs are created by users

Short for **MOD**ification

MODDING





FOR THE GLORY OF THE EMPIRE



HAFM SUBMARINES MOD v1.0



TYPE 209 - CLASS



TYPE 214 - CLASS



VIRGINIA-CLASS



YASEN - CLASS



Hellenic Armed Forces Mod



















time SCALE = 1

Speed = 212.49 * 10³ km/h

Speed Set = 100.000 * 10³ km/h

Plane Engine = Off

Space Engine = On

time = 13:8:15

Date = 6.7.2035



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VIDDA
@bludclouds



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LYTHIUM
@modFFAA



THE PANDORA'S BOX OF MODDING IN 'ARMA' GAMES
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CHONGO
@icebreakr







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Bohemia Interactive
@thebuckfastwine







How do you want to interrogate the local?

1. EASY INTERROGATION (2 hours) (low Intel, gains local reputation)
2. NORMAL INTERROGATION (4 hours) (medium Intel, no reputation penalty)
3. AGGRESSIVE INTERROGATION (6 hours) (high Intel, local reputation drops)
4. SPECIAL INTERROGATION (6 hours) (REQUIERES 50 REPUTATION) (very high Intel, no reputation penalty)
5. Exit (Come Back Later)







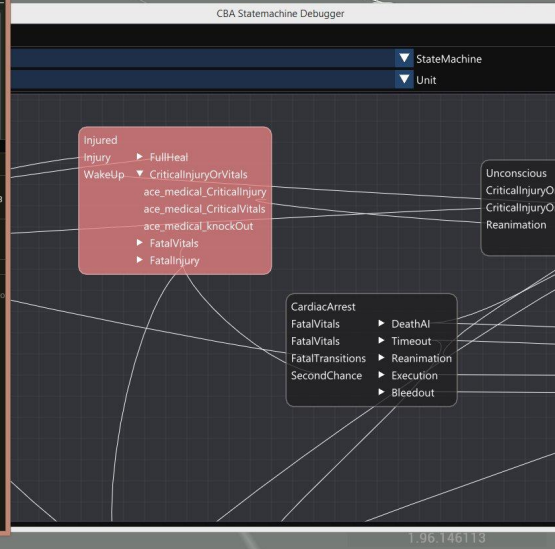


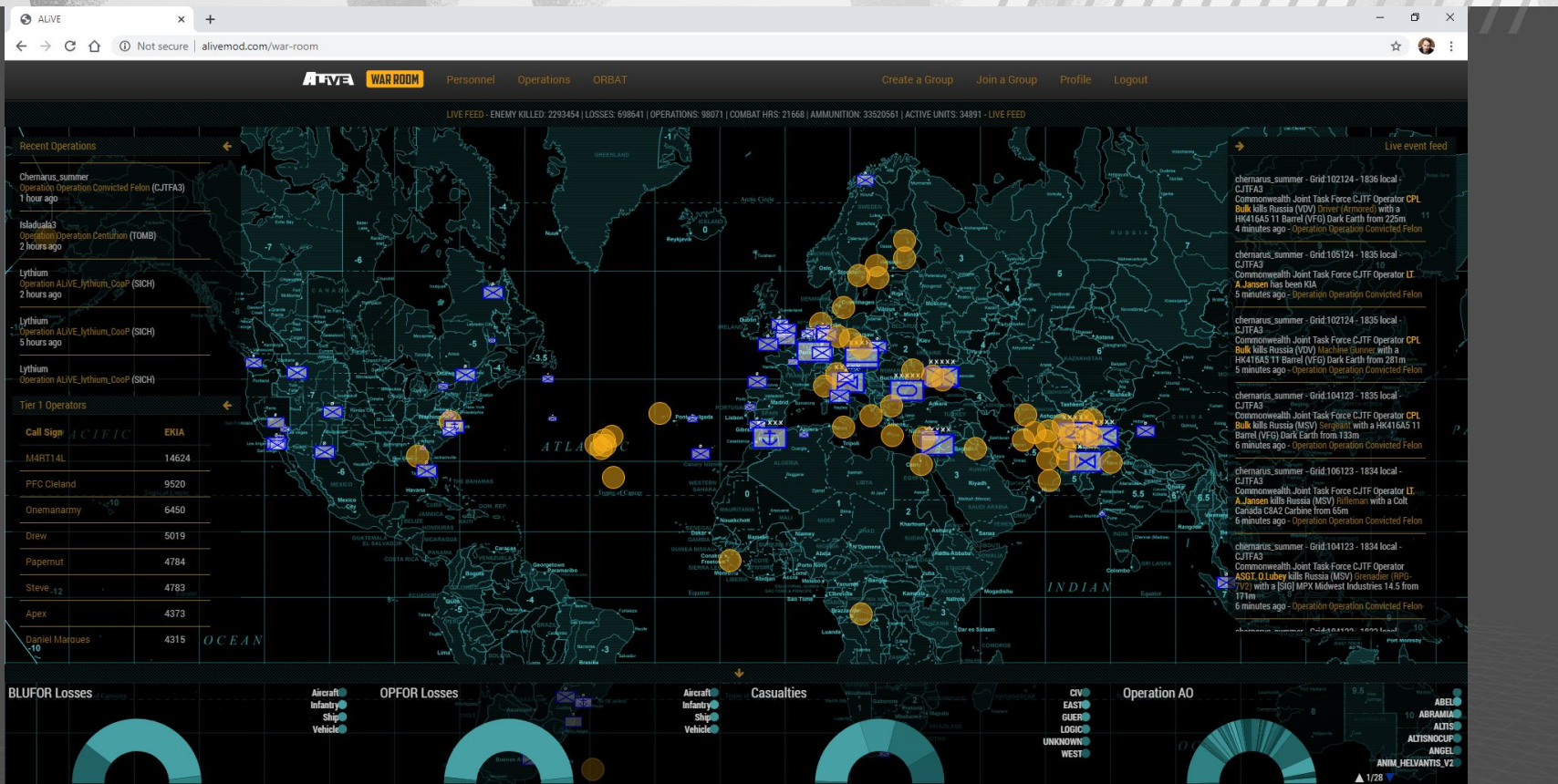






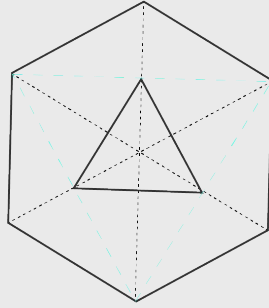






WHY DOESN'T EVERYONE DO IT?

- ▶ The project's **ANATOMY** is very complex
- ▶ Devs need different **MINDSET**
- ▶ Limited **CONTROL** over the direction
- ▶ Modders need **SUPPORT**



ANATOMY

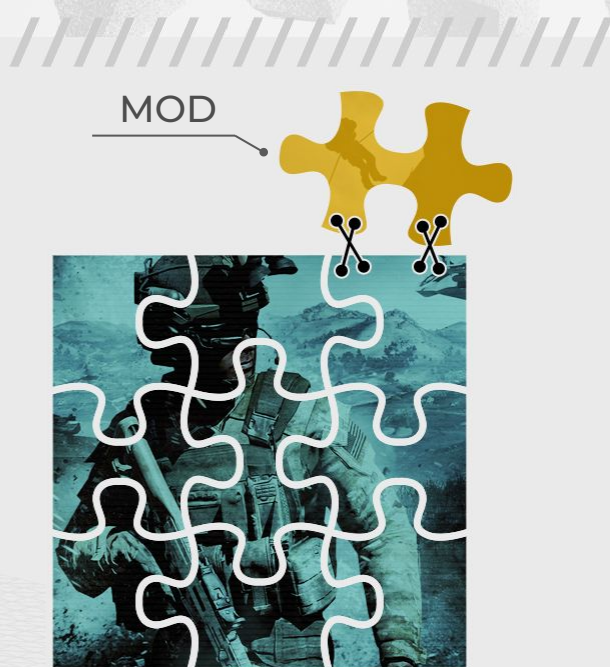
STANDARD GAME

- ▶ Made of individual pieces
- ▶ You have **full control**
- ▶ Cannot be tampered with
- ▶ Nobody will see the mess



IMPROVISED MOD

- ▶ People willing to mod will do it
- ▶ No official support? No problem!
- ▶ *“Life finds a way”*
- ▶ Often messy and unstable



MODDABLE GAME

- ▶ Provides **API for modders**
- ▶ Mods add new content on top
- ▶ We call such product a **platform**
- ▶ Suitable for systemic games



MULTIPLE MODS

- ▶ In *Arma*, multiple mods can co-exist
- ▶ All data share the **same architecture**
- ▶ Official DLC are configured as mods
- ▶ The game itself is a mod of core data

MOD A



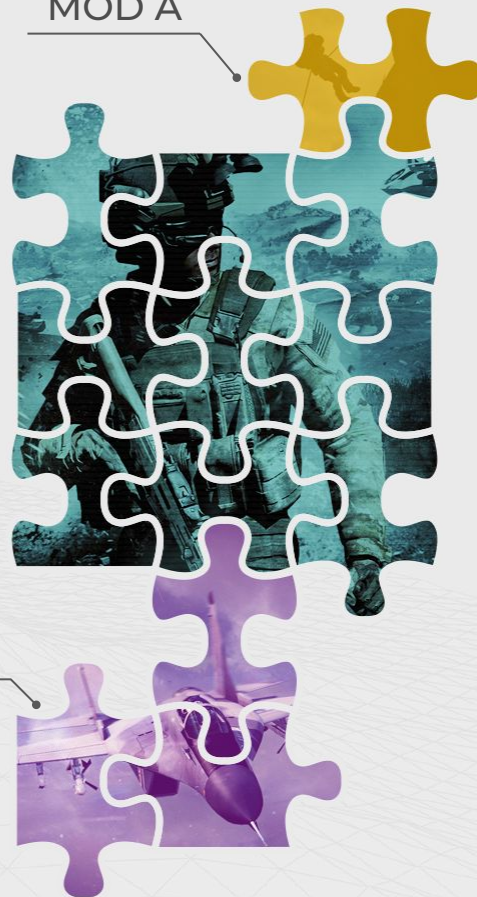
MOD B



MULTIPLE MODS



MOD A



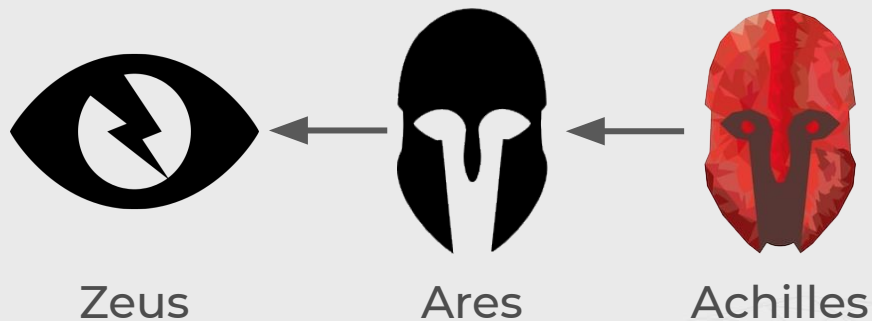
MOD OF A MOD

- ▶ Mods can extend other mods
- ▶ Some mods are just frameworks
- ▶ **Dependencies** need to be defined
- ▶ What if required mod is missing?



MOD OF A MOD

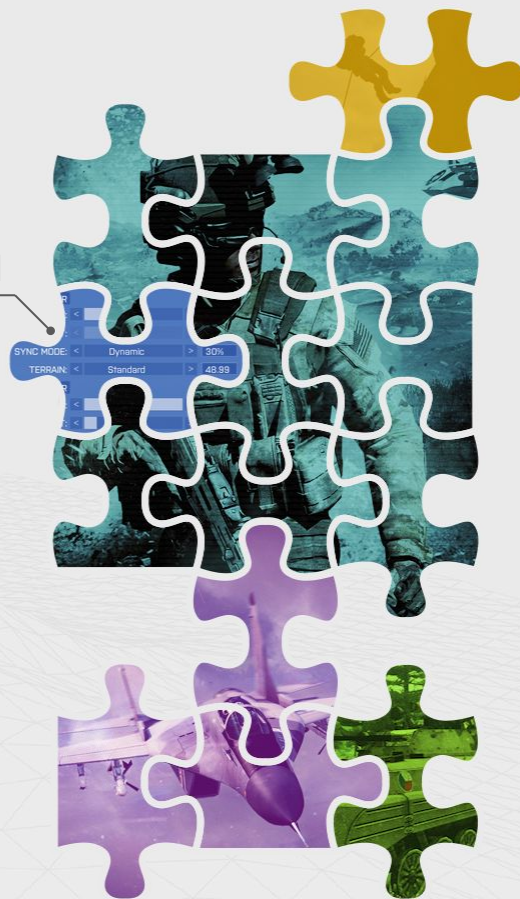
EXAMPLE:



PATCH MOD

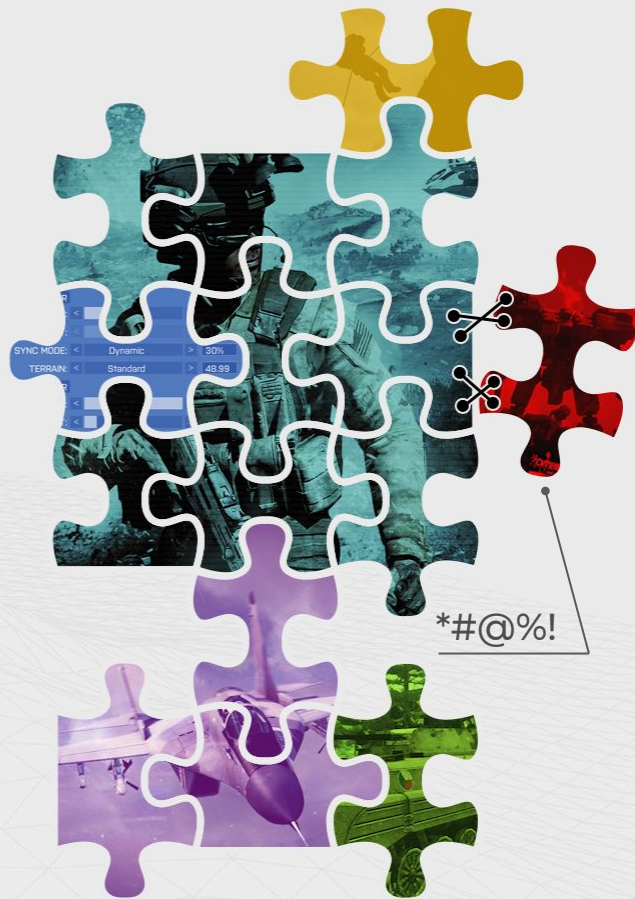
- ▶ **Overloads** existing content
- ▶ Foundation of total conversions
- ▶ Multiple mods can be changing the same value, load order needed

PATCH



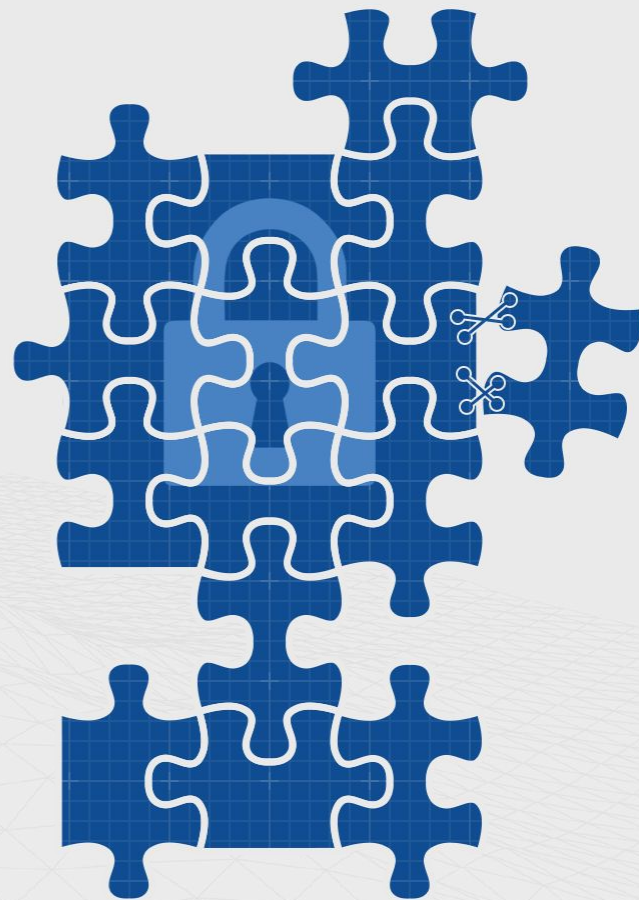
NEVER PERFECT

- ▶ It's impossible to cover all cases
- ▶ Analyze what modders try to do
- ▶ It can highlight gaps in the platform



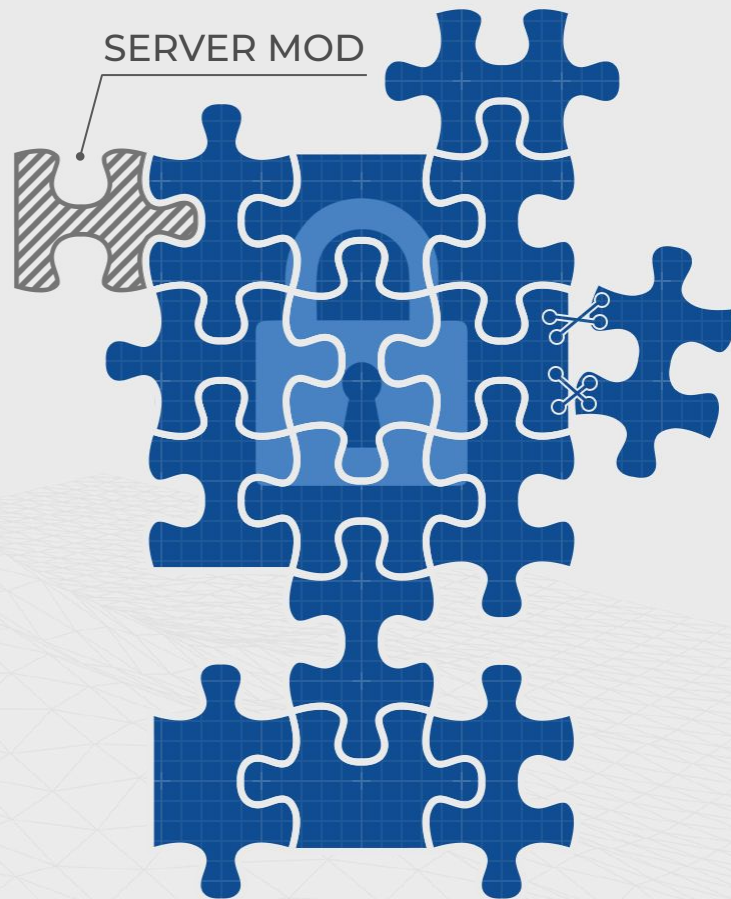
MODS IN MULTIPLAYER

- ▶ Server defines required mods
- ▶ Client can **join only with the same mods**
- ▶ Launcher downloads them automatically
- ▶ Most servers are community-owned



SERVER MODS

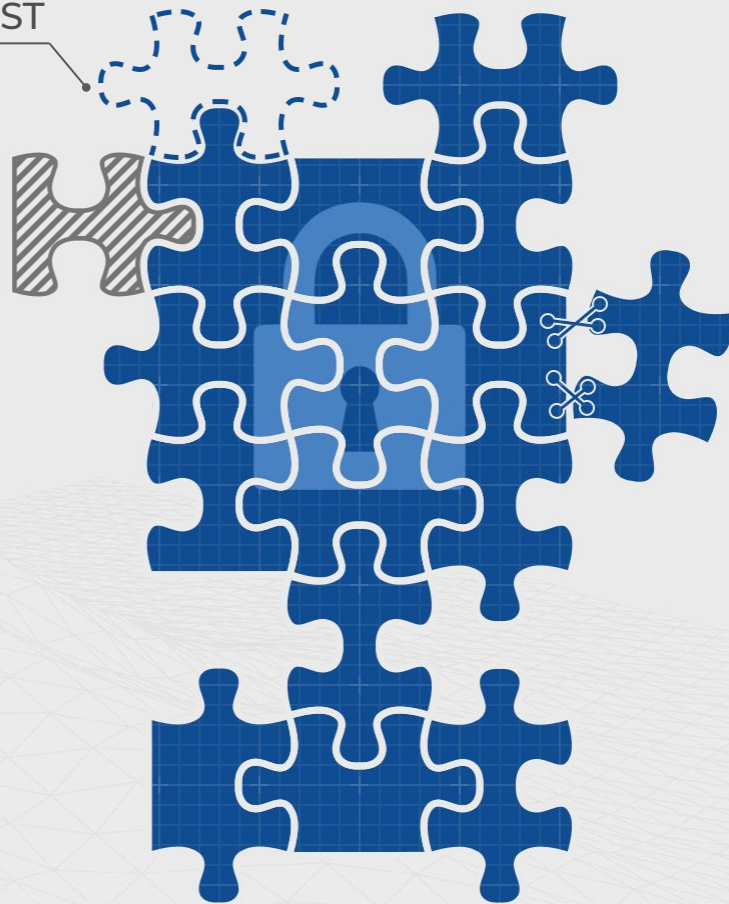
- ▶ Mods installed **only on the server**
- ▶ Clients cannot see them
- ▶ They handle sensitive stuff
- ▶ Fiercely protected by authors



CLIENT MODS

- ▶ Optional client-side mods
- ▶ Usually for harmless tweaks
- ▶ **Whitelisted** by the server

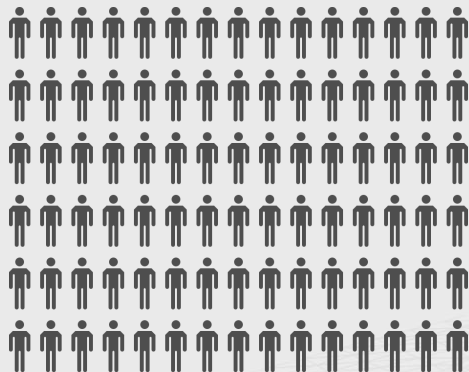
WHITELIST



DEVELOPING
GAME

VS

DEVELOPING
PLATFORM



**BUT
MODDING!**

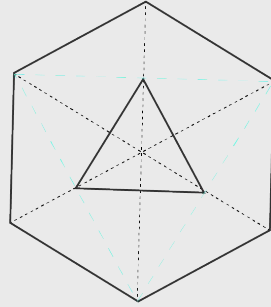


DEVELOPING
GAME

VS

DEVELOPING
PLATFORM



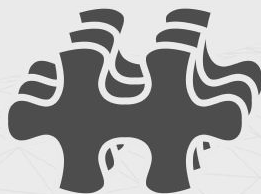


MINDSET

Create

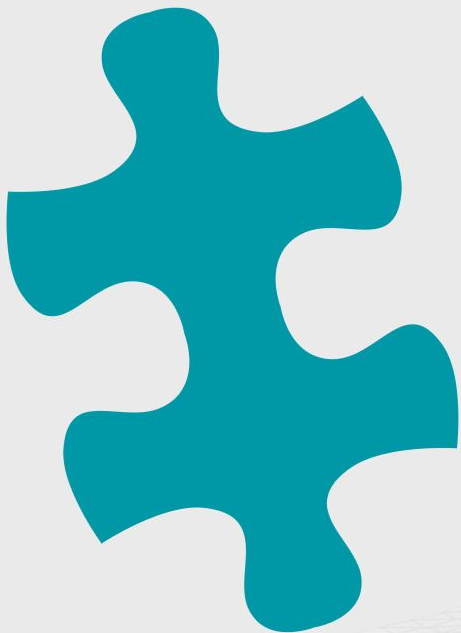


Organize



Release



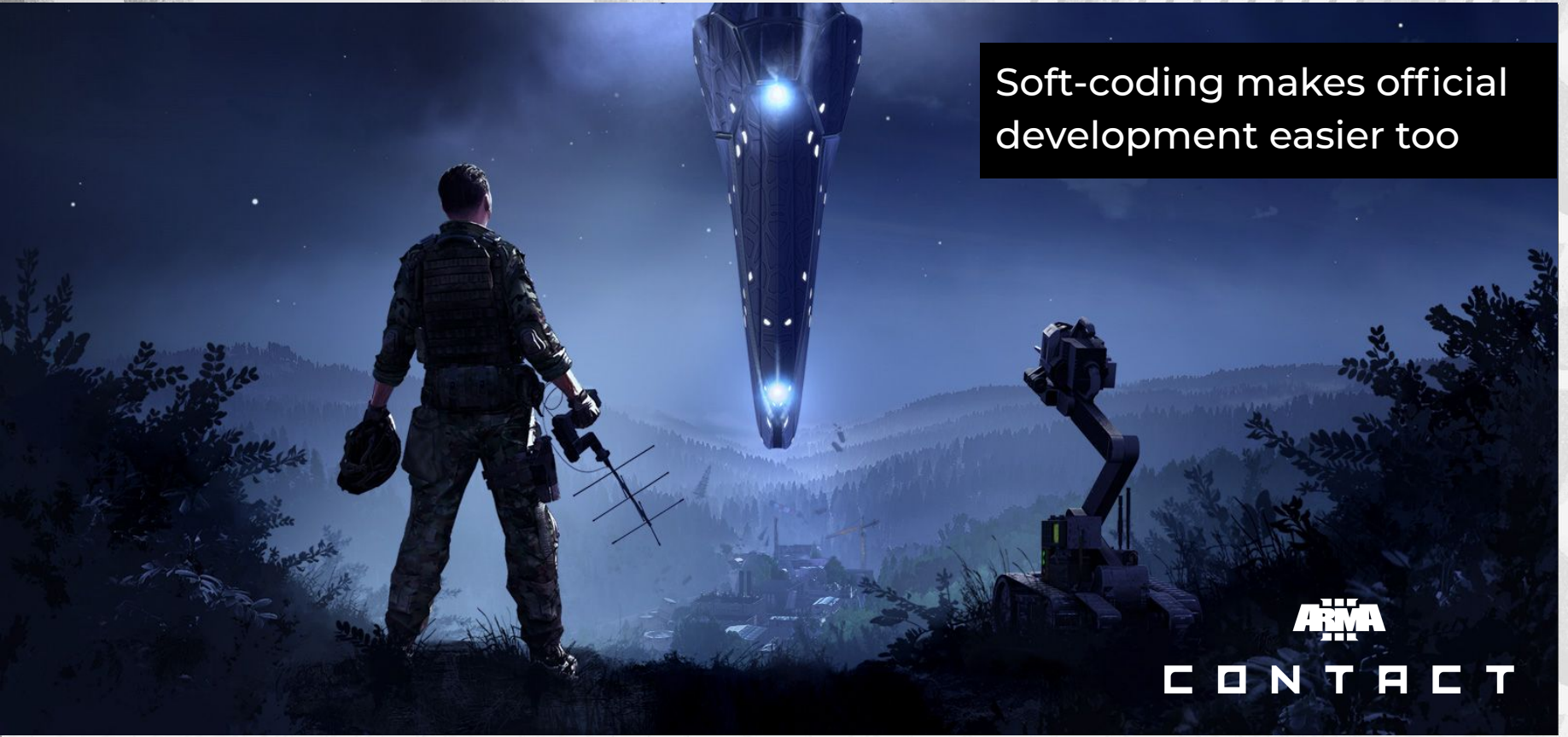


SOFT-CODING

- ▶ Expose values in data
- ▶ Don't hardcode them
- ▶ Value inputs, sliders, check boxes, or just script variables...

Example

```
return var * param;  
//return var + 24;
```

Soft-coding makes official
development easier too

ARMA

C O N T A C T



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Every content list must support
from **0** to **∞** entries

SCENARIOS

morickykar

Sort by name

Steam subscribed content

by Steam community

Steam subscribed content

ARMA
WORKSHOP

Subscribe to user-generated scenarios and download them straight into
the game from Steam Workshop.

COUNT: 0

SCENARIOS

morickykar

Sort by name

Cope's revenge 3 [SP]

by Celoush

▼ Steam subscribed content

- ▶ [SP/MP]Dynamic Universal War System
- ☐ A3 - Antistasi Altis
- ☒ Cope's revenge 3 [SP]
- ▶ Dynamic Recon Ops - Livonia
- ▶ Stargazer



COUNT: 5

"It looks like it never ends. I was trying to find peacefull place but no. Time to another revenge. Maybe I am old and my instincts dont last long. So, I must be fast." RIP - Martin Böttcher (17 June 1927 – 20 April 2019)

SCENARIOS

morickykar

Sort by name

Cope's revenge 3 [SP]

by Celoush

- ☐ [SP/COOP 12] The Days After Zero
- ☒ [SP/MP]Dynamic Universal War System
- ☐ [SP] Call of Battlefield (Parody)
- ☐ [SP] DayZero Chernarus
- ☐ [SP] Escape from captivity
- ☐ [SP] Infantry
- ☐ [SP] Lone Survivor
- ☐ [SP] On The Other Side - by Bauerhouseb
- ☐ [SP] Operation Scar
- ☐ [TDNL] Assault on Charkia - SP
- ☐ [TDNL] Flashpoint - Ambush



COUNT: 200+

"It looks like it never ends. I was trying to find peacefull place but no. I tried to find a place where I could find peace. I tried to find another revenge. Maybe I am old and I should find my instin. I must be fast." RIP - Martin Böttcher (17 June 1927 – 20 April 2019)

- ☐ A3 - Antistasi Altis
- ☐ A3-Antistasi Altis BLUFOR
- ☐ Altis Skatepark v3
- ☐ Ambush (SP + CO-OP)
- ☐ Antistasi - Warlords of the Pacific
- ☐ Arma 3 Rally - Skopos Course
- ☐ Arma 3 S.W.A.T.
- ☐ Arma 3 Sandbox [Altis]
- ☐ Arma 3 Sandbox [Stratis]
- ☐ Bad Holiday
- ☐ CLOSE AIR SUPPORT (Day 2)
- ☐ Galtville Assault JFA2

Showing 1-30 of 61,228 entries

Sort by

Most Popular ▾

Over time period

All Time ▾



[SP/MP]Dynamic Universal W...
by Kibot



HUNTER SIX - Special Opera...
by Lato



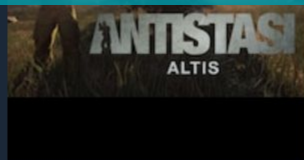
[SP] On The Other Side - by ...
by Fjhant



[SP] Operation Scar
by HallyG



Dynamic Recon Ops - Altis
by baby yoda executed by the state



A3 - Antistasi Altis
by barbolani

Show items tagged with all of the selected terms:

DATA TYPE

☒ Scenario

☐ Mod

☐ Server

MOD TYPE

☐ Animation

☐ Boat

☐ Campaign

☐ Character

☐ Editor Extension

☐ Equipment

☐ Helicopter

☐ Mechanics

☐ Plane

☐ Sound

☐ Structure

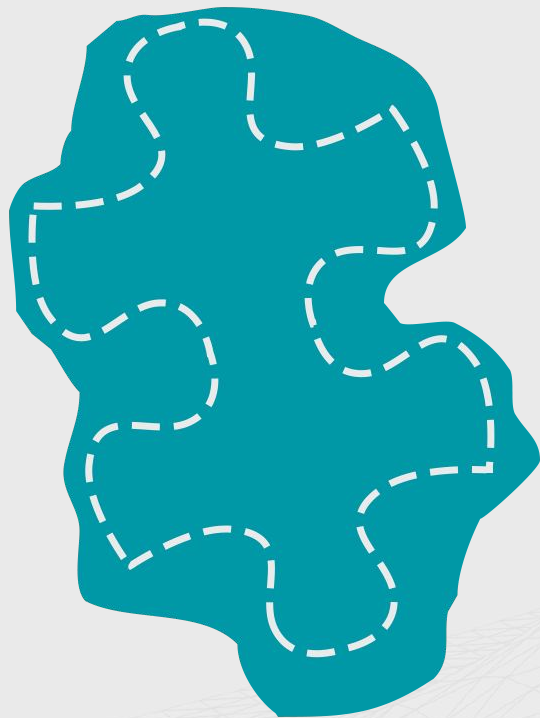
☐ Terrain

☐ Tracked

☐ Weapon

☐ Wheeled

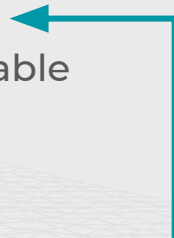
COUNT: 70,174



GAME FIRST

A moddable game is still a game

1. Make it work
2. Make it good
3. Make it moddable



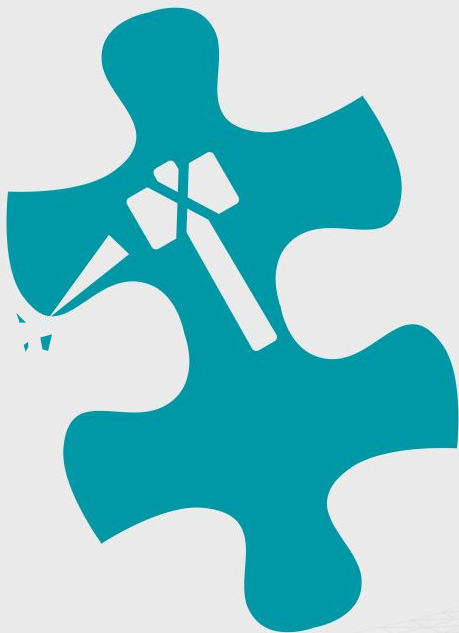
You must use features
you expect to be modded.





TOOLS

- ▶ Same tools for devs and modders
- ▶ Promotes better UX and documentation
- ▶ Tools should be moddable too



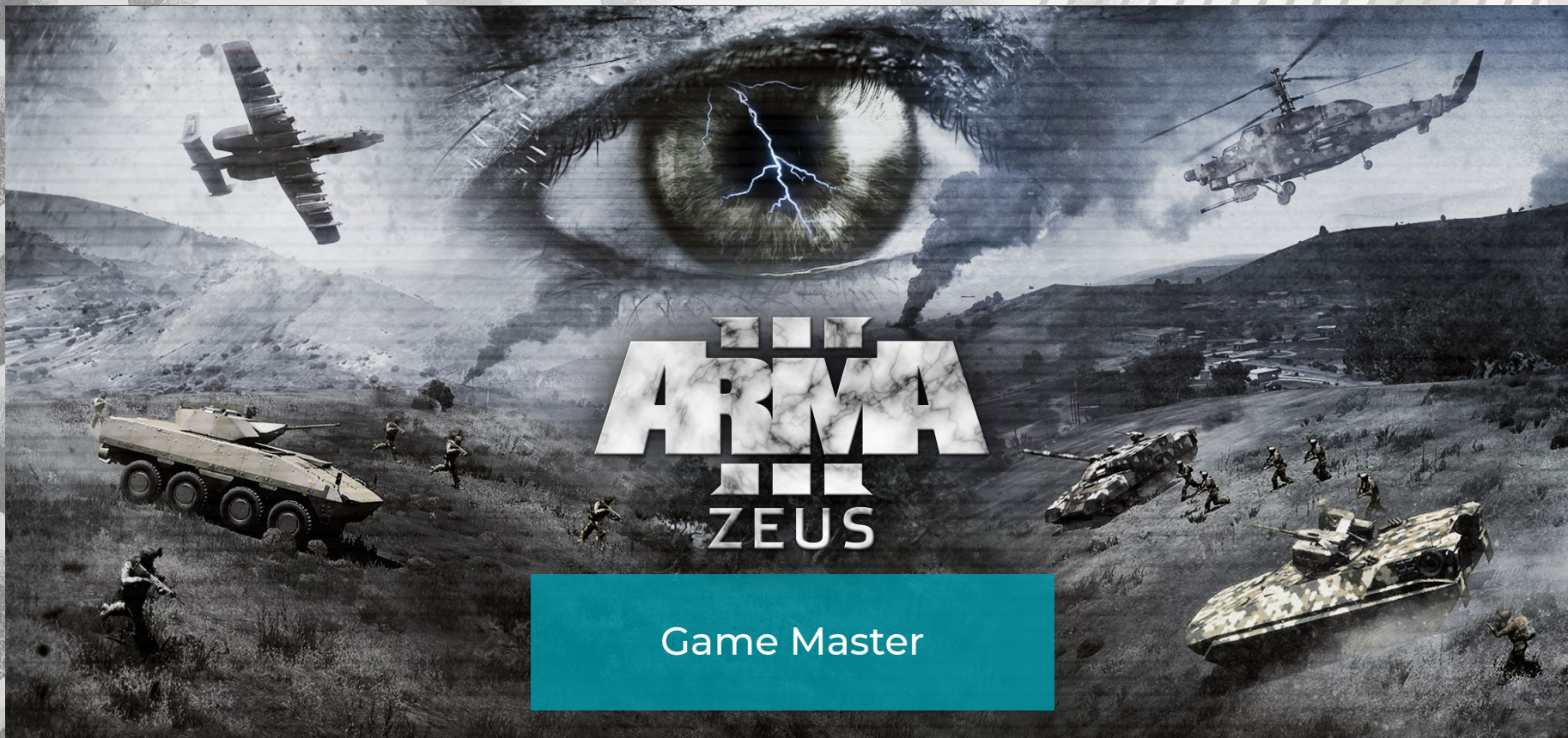
IN-GAME TOOLS

- ▶ Scenario editor available in-game
- ▶ Players don't need to install any SDK
- ▶ The easiest way to start modding



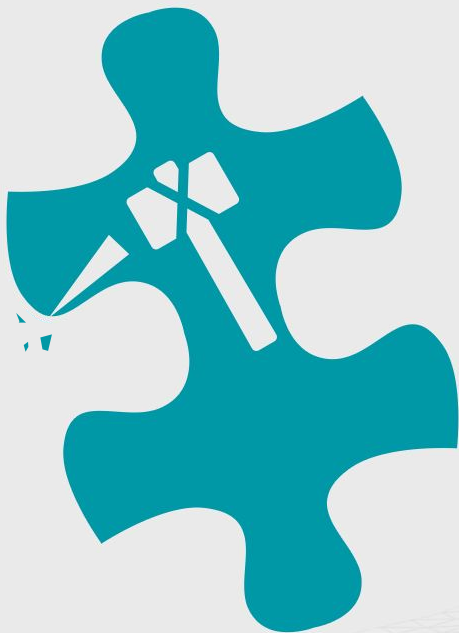


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Game Master





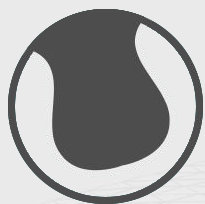
IN-GAME TOOLS

- ▶ Scenario editors available in-game
- ▶ Players don't need to install any SDK
- ▶ The easiest way to start modding
- ▶ Modding *is* playing

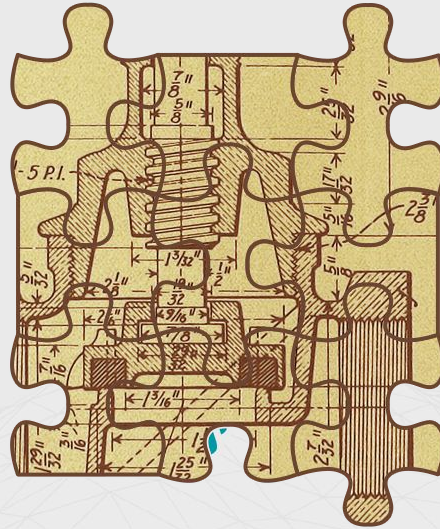
Create

Organize

Release



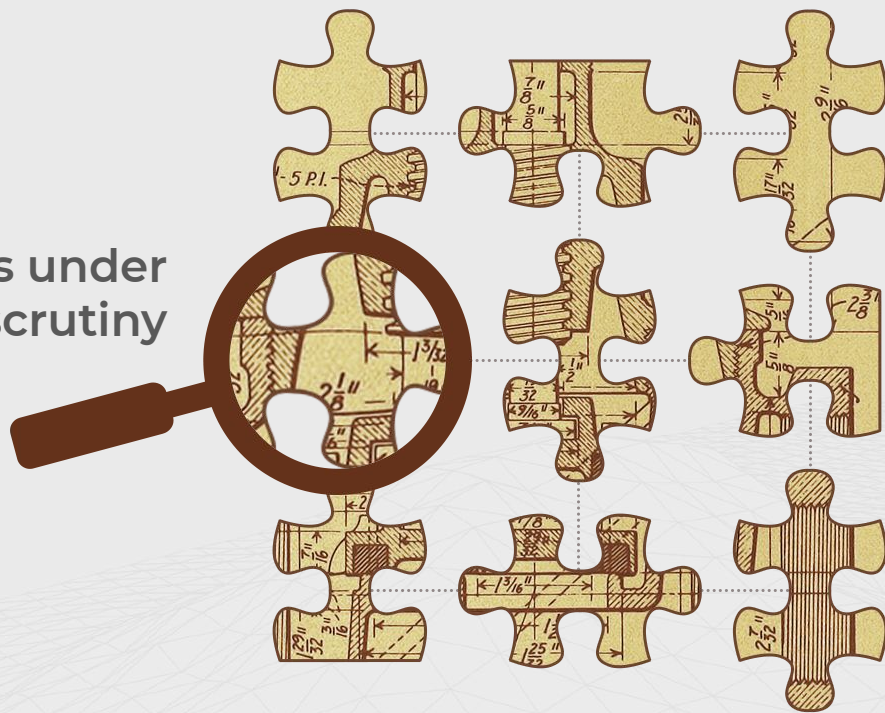
Our data are exposed



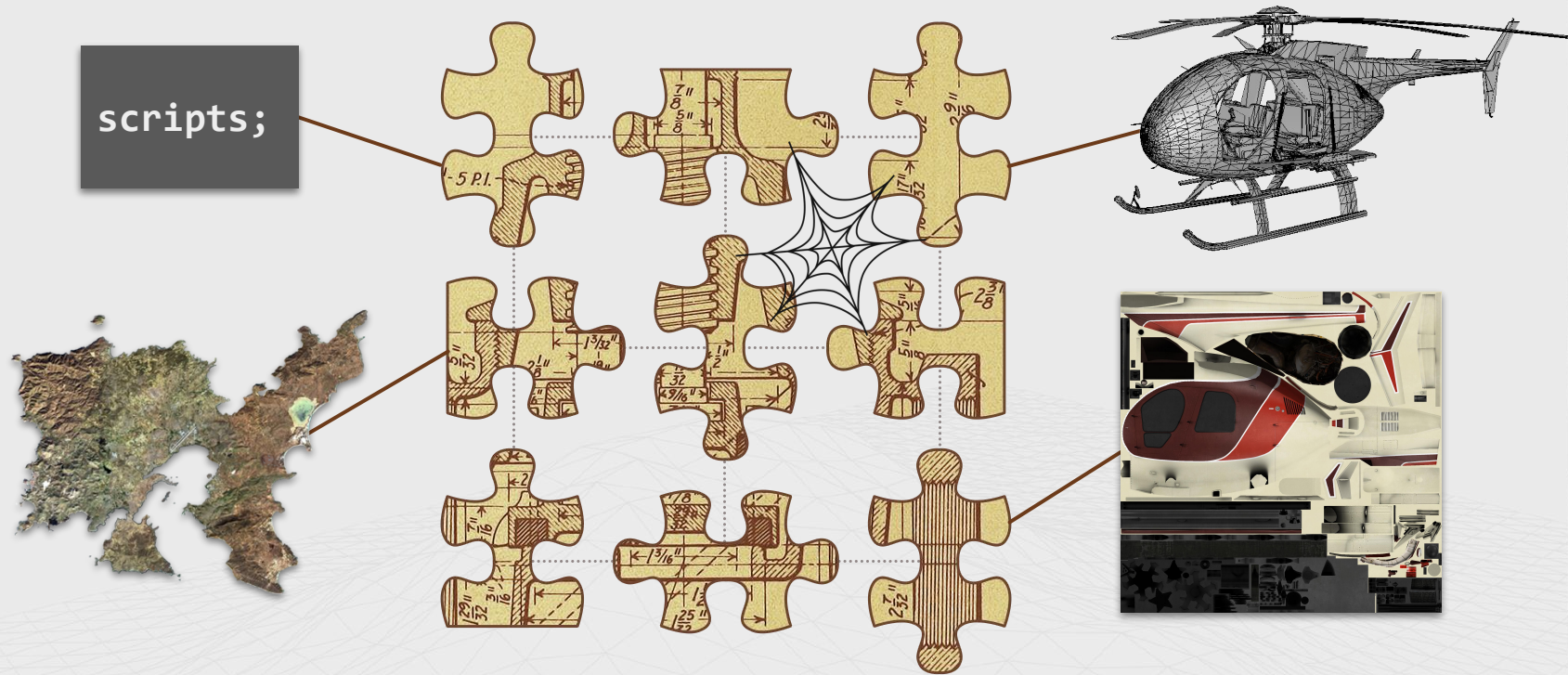
A series of parallel diagonal lines, slanted upwards from left to right, spanning the width of the page.

Our data are exposed

Everything is under
intense scrutiny



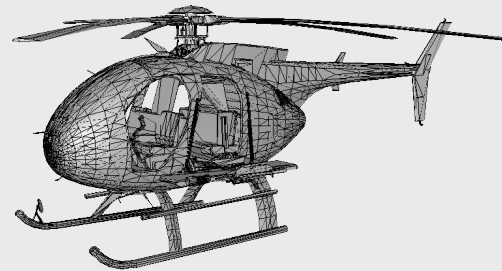
Our data are exposed



scripts;

SQF

P3D



We offer selected
source data



WRP

PSD



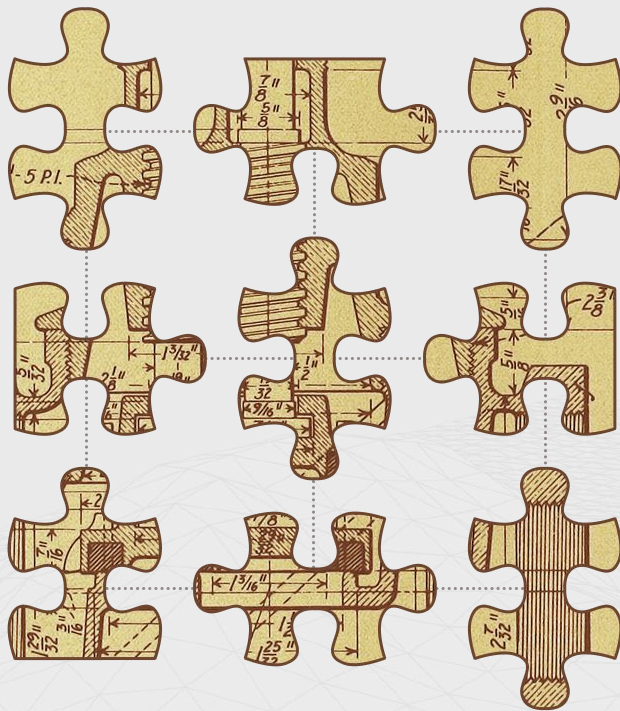


Unused content



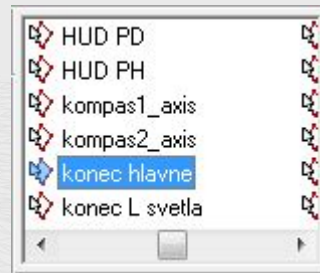
Future content

COMMON MISTAKES



```
class Octavia_ACR: Car
{
```

Licensed content



Non-English texts



setDamage



setDamMage



Paid DLC data



Why?

- ▶ Value
- ▶ Security

Create



Organize



Release



Mod

Game

1.40

1.42

Game updates can break mods

Mod

Something is different

What was working is broken

What was broken is fixed!

Game

1.40

1.42

Mod



Mods still in
development
will release a fix
(after a disruption)

Game

1.40

1.42

Mod



We maintain **development branch**
along the main one

Game



Modders can synchronize their development with ours



When something goes wrong,
problems won't affect players



Mods can release **their updates**
together with the **game update**



No longer maintained mods
will remain broken forever

Mod



Game



BACKWARD COMPATIBILITY

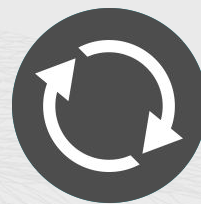
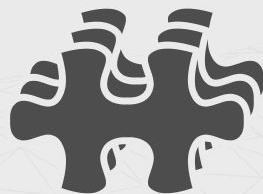
There are only a few opportunities for doing major changes

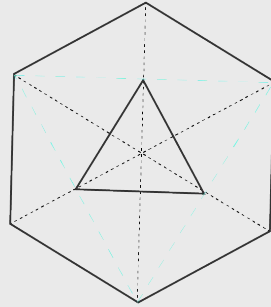


Create

Organize

Release





CONTROL



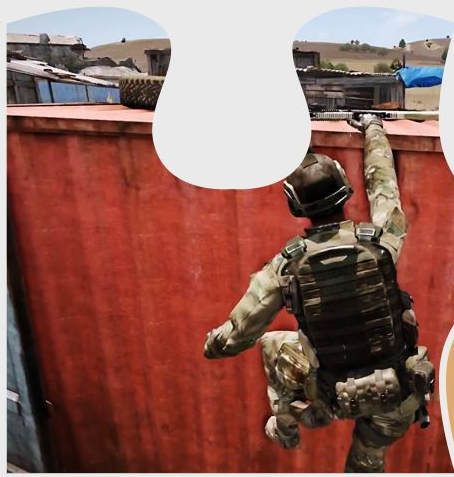
Players dream up
ideal changes in the game



Mods can deliver those dreams



Mods can deliver those dreams



Mods can deliver those dreams

mods are finishing an imperfect game



But mods are often:

- ▶ Too niche
- ▶ Too naive
- ▶ Too complex

Arma 3> Workshop > WonkyWilla's Workshop

Enhanced Movement



Arma 3> Workshop > LAxemann's Workshop

Enhanced Soundscape



Arma 3> Workshop > R3vo's Workshop

3den Enhanced



Arma 3> Workshop > duda's Workshop

Advanced Rappelling



Arma 3> Workshop > duda's Workshop

Advanced Train Simulator (ATS)



Arma 3> Workshop > acemod's Workshop

ace = Advanced Combat Environment

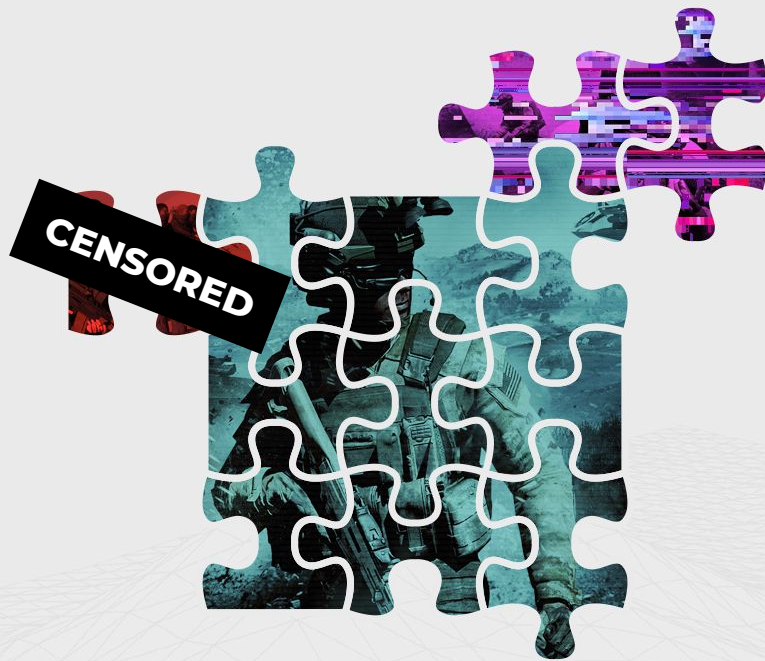


We prefer when mods enhance,
not simplify the game.

Mods can cover
problematic topics



Mods can cover
problematic topics



They can also cause
performance issues
and visible bugs

Mods can cover
problematic topics



They can also cause
performance issues
and visible bugs

When it's difficult to tell
vanilla and modded content
apart, **we get blamed
for problems in mods**



Highlight modded content whenever possible

- ▶ Avoid blame
- ▶ Credit authors

ESSEKER

by RonhillUltra & ThcMonkee

ESSEKER

by RonhillUltra & ThcMonkee

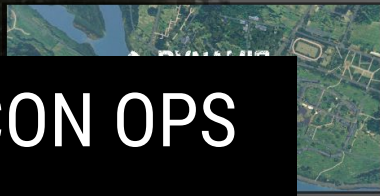
Main Build - 1.96.146114H+

You're running a modded version of the game, which may change gameplay, performance and stability.

You're running a modded version of the game, which may change gameplay, performance and stability

DYNAMIC RECON OPS

by mbrdnm



DYNAMIC RECON OPS

by mbrdnm

Special thanks to our biggest supporters: FRANKIEonPCin1080p, ePURGEUK, Gamers inc., Breaking Point, CCG... and all who donated



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Not all mods follow serious military theme

CIVILIAN RPG



KING OF THE HILL

SURVIVAL

BATTLE ROYALE

Many Arma 3 mods **overgrow** the game

CIVILIAN
RPG



SURVIVAL



KING OF THE HILL

BATTLE ROYALE



Many Arma 3 mods **overgrow** the game

CIVILIAN
RPG



SURVIVAL



KING OF
THE HILL



BATTLE
ROYALE



Mod players may not even know
the vanilla game

CIVILIAN
RPG



SURVIVAL



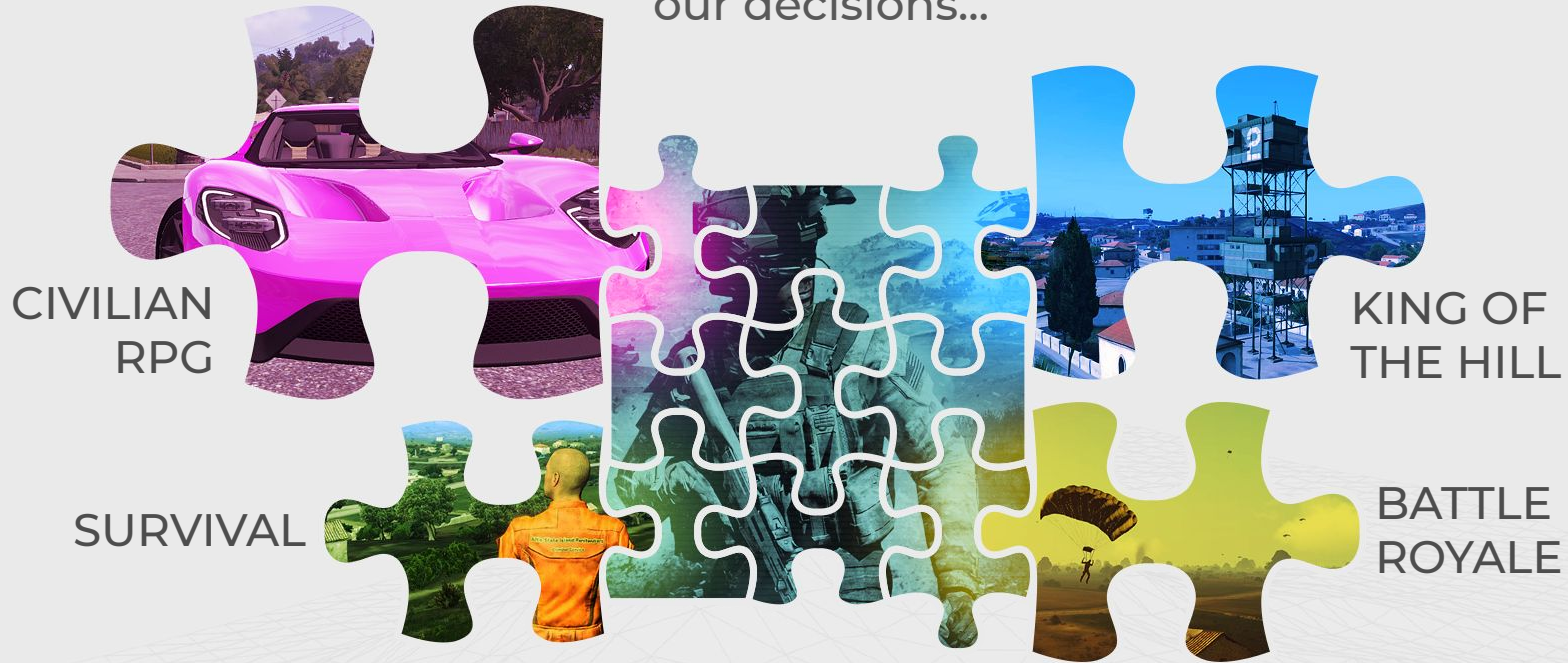
KING OF
THE HILL



BATTLE
ROYALE



Popular mods can influence
our decisions...



CIVILIAN
RPG

KING OF
THE HILL

SURVIVAL

BATTLE
ROYALE

...and take our resources to support

Catering to too many visions can
tear the game apart



We stay true
to our vision

CIVILIAN
RPG



SURVIVAL



KING OF
THE HILL

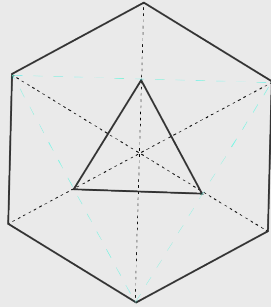


BATTLE
ROYALE





ARMA
LAWS OF WAR



SUPPORT

CAUTION



CAUTION

**MOD STEALING
FROM OTHER GAMES**

YOUR DATA CAN BE STOLEN TOO!

CAUTION

**MOD STEALING
FROM OTHER MODS**

CAN MODDERS LOCK THEIR DATA?

CAUTION

**UNAUTHORIZED
MOD REUPLOAD**

VERSIONING COULD PREVENT IT

**BEWARE
OF THE
WORKSHOP
CRAWLER**

CAUTION

IP
Management
Inspiration



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1/7

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Arma Public Licence (APL)

Allow others modify
your Arma mod?

Yes

No

Under the same terms only?

Yes

No



Share Alike



No Derivatives

How else can we
reward creators?

Still a toxic theme

~~PAID MOD\$~~



MAKE ARMA NOT WAR

Content Creation Contest

- ▶ €500,000 awarded in four categories
- ▶ Running for 1 year to give modders time
- ▶ Strict rules for original content
- ▶ Much drama involved!
- ▶ Brought life to the modding scene

PLAYERUNKNOWN'S
BATTLEGROUNDS

HIRED



ALEX VOROBIEV
RHS: ESCALATION



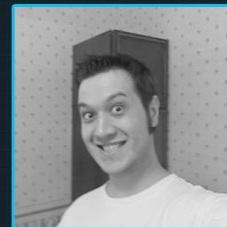
SCOTT ALSWORTH
RESIST



RYDYGIER
PILGRIMAGE



VACLAV KERBER
DELIVERANCE



SA-MATRA
KING OF THE HILL



BRENDAN GREENE
BATTLE ROYALE
GHOST HOTEL



DORIAN23GREY
TWILIGHT ONSLAUGHT



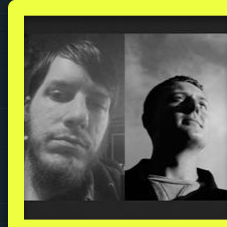
CHRIS
GET WRECKED



MICHAIL NIKOLAEV
TASK FORCE
ARROWHEAD RADIO



EGIL SANDFELD
BORNHOLM



SAUL & JOHN SPARTAN
F/A-18X BLACK WASP



ROBJ
PILOT CIVILIAN AIR
RESCUE

CONTRACTED



Arma 3 Jets DLC developed in partnership
with 3rd party team *BRAVO ZERO ONE*



THE PANDORA'S BOX OF MODDING IN 'ARMA' GAMES
Karel Mořický



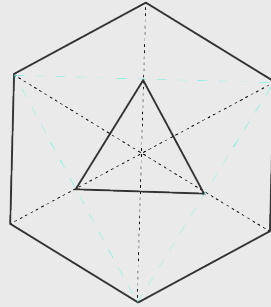
MADE BY MODDERS PUBLISHED BY US

- ▶ They pitch a new idea
 - Cannot be already released free mod!
- ▶ When approved, we guide them through the development
 - We take the role of a publisher, not a co-developer
- ▶ After the release, we split the net revenue 50/50





*Arma 3 S.O.G. Prairie Fire DLC
developed by Savage Game Design*



FUTURE

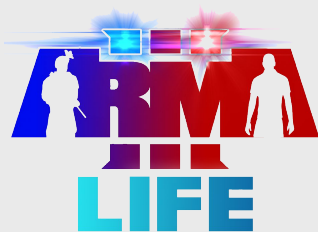
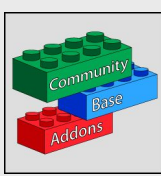


- ▶ New in-house Enfusion engine
- ▶ Modding is a focus from the beginning
- ▶ Combining knowledge from all of our moddable games
 - ▶ **Arma 3** - general modding experience
 - ▶ **DayZ** - persistent multiplayer modding
 - ▶ **Ylands** - backend, including custom workshop

WHY **SHOULD** EVERYONE DO IT!

- ▶ The project's **ANATOMY** is very **robust**
- ▶ Devs need **open** **MINDSET**
- ▶ **Shared** **CONTROL** over the direction
- ▶ Modders **give** **SUPPORT**

SPECIAL THANKS



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