

UIModManager - Guide for modders

Vol. 1 – Mastering .ini lines

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1. INTRODUCTION

There are 2 main files you are interested in:

`DefaultModsProfile.ini`
`XComModShell.INT` (and optionally it's siblings: `.RUS`, `.ESN`, `.ITA`, `.POL` etc.)

Here are default paths for them:

`[PathToXEWfolder]\XComGame\Config\DefaultModsProfile.ini`
`[PathToXEWfolder]\XComGame\Localization\XComModShell.INT`

Inside `DefaultModsProfile.ini` you can find examples of lines that build widgets in Mods Menu. How these work is explained below step by step.

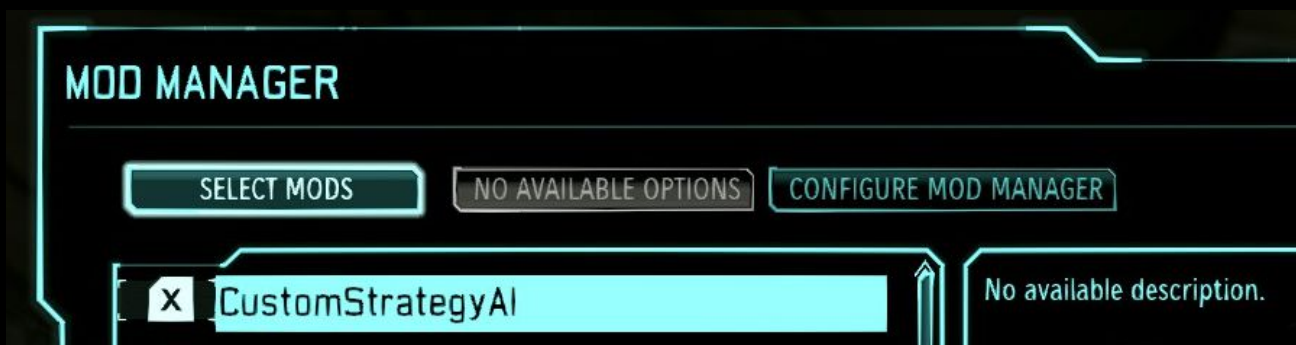
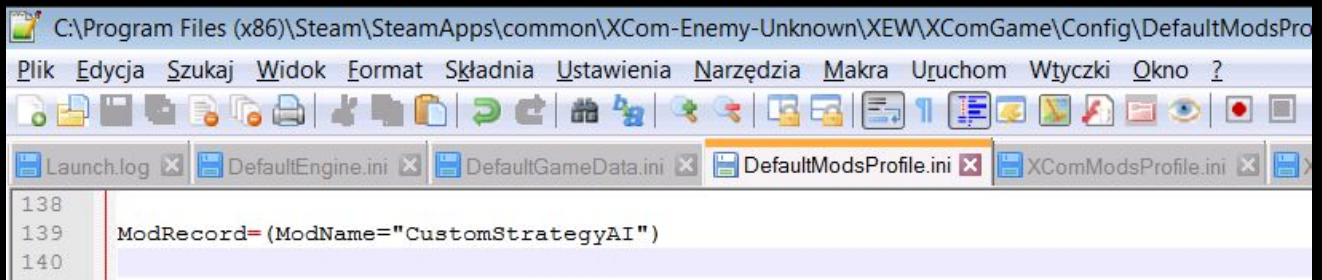
Screenshots show certain lines added to `DefaultModsProfile.ini` (and further to `XComModShell.INT`) accompanied by their result in the Mods Menu. Other screenshots show how to get correct paths for `VarPath`.

As the example mod I will be using

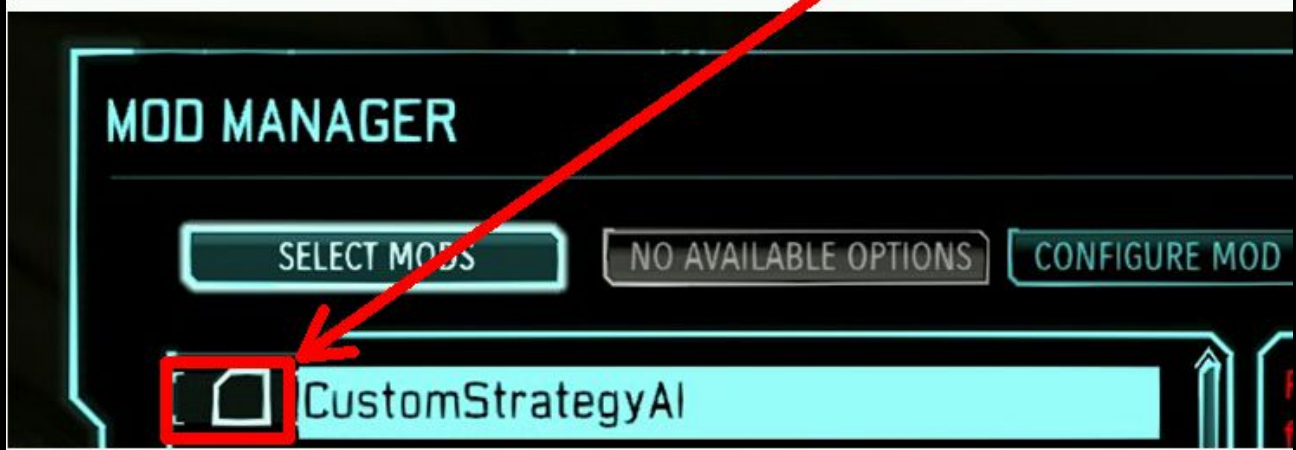
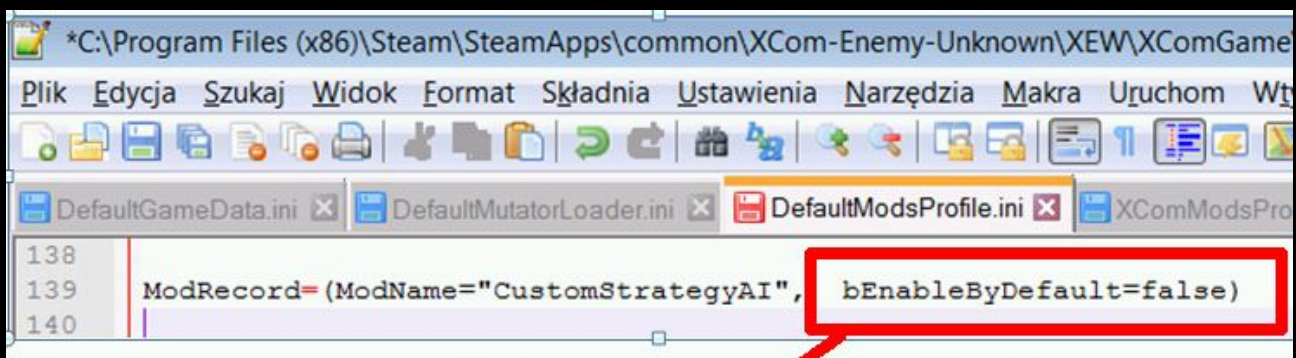
“Mutators to enable new AI and SHIV XP” mod by wghost81.

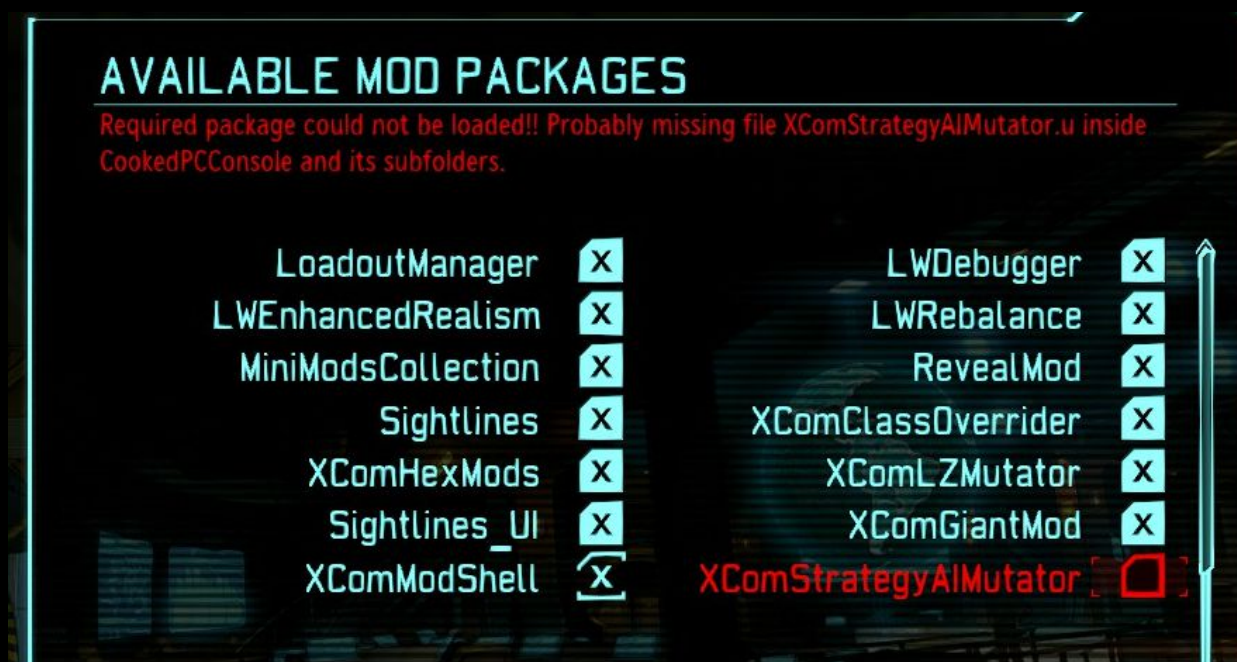
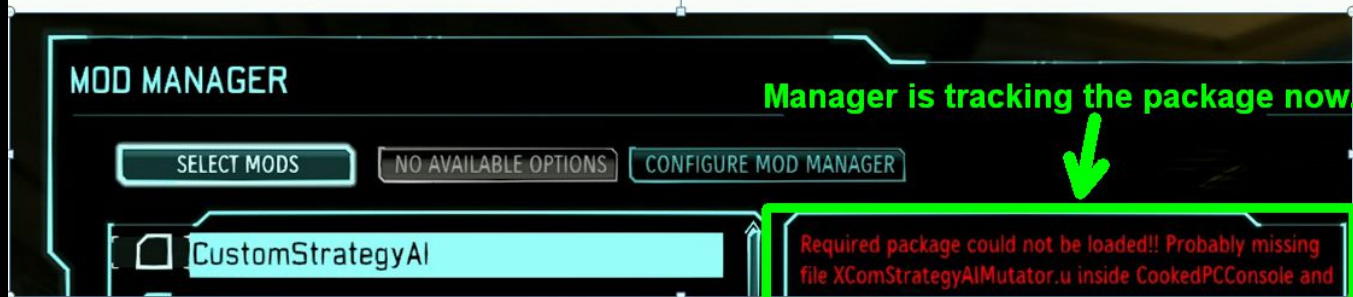
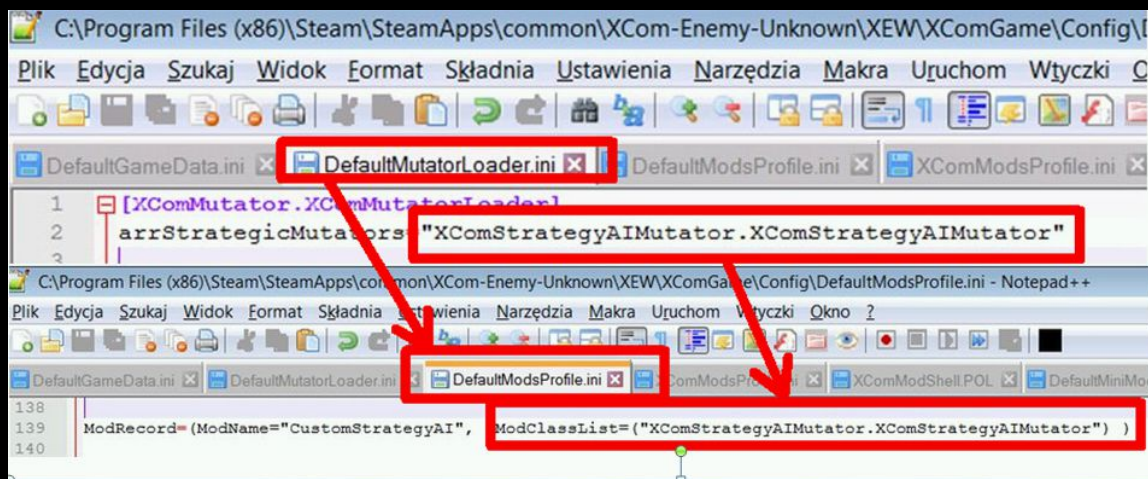
2. TYPES OF LINES IN DEFAULTMODSPROFILE.INI

2.1. ModRecord

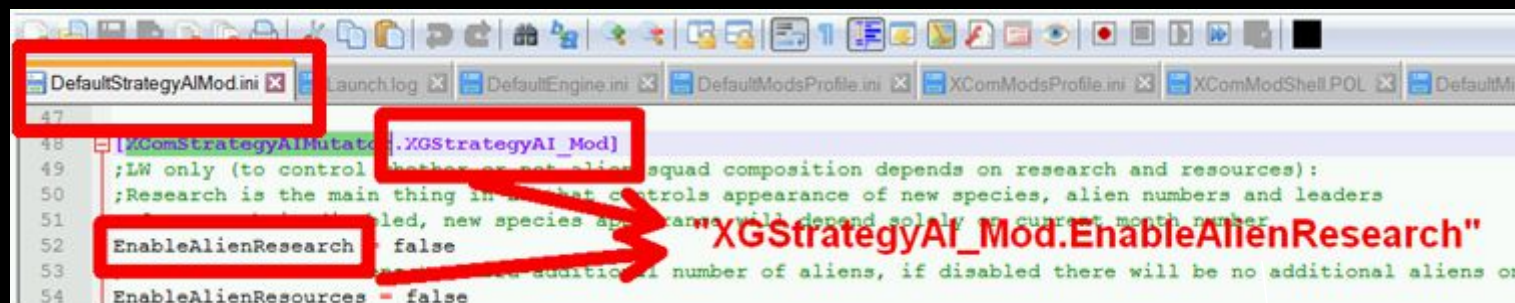


ModName should be a unique mod identifier, spaces are allowed therefore "Custom Strategy AI" is as good as "CustomStrategyAI". However providing „friendly names” should be rather handled through .INT file. This is explained much further.



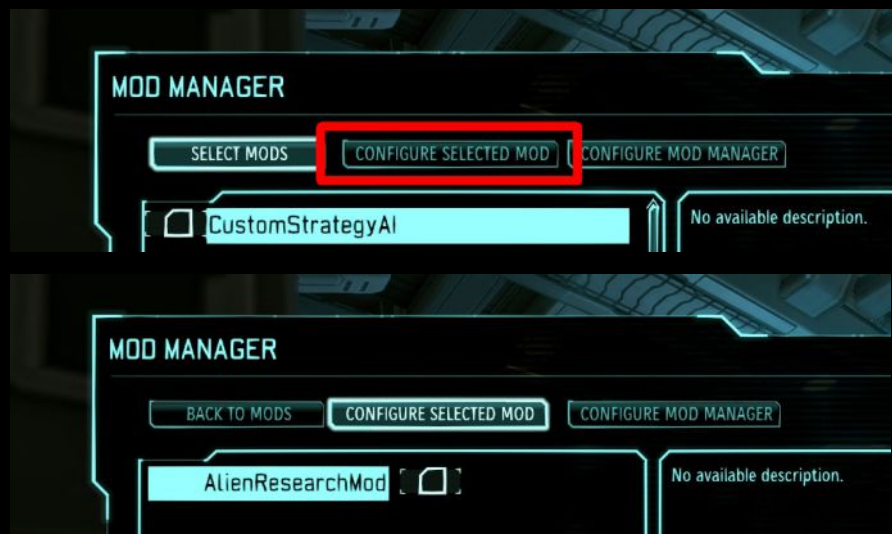


2.2. ModOptionBool



```
ModRecord=(ModName="CustomStrategyAI",ModClassList=("XComStrategyAIMutator.XComStrategyAIMutator"), bEnabledByDefault=false)
```

```
ModOptionBool=(ModName="CustomStrategyAI",VarName="AlienResearchMod",VarPath="XGStrategyAI_Mod.EnableAlienResearch",bDefault=false)
```



VarName should be unique within the scope of a given **ModName** (so you can use the same **VarName** in a line with other **ModName**), spaces are allowed. Therefore "Alien Research Mod" would be as good as "AlienResearchMod". However, again, "friendly names" are avoided in examples to show the power of .INT file later on.

```
Program Files (x86)\Steam\SteamApps\common\XCom-Enemy-Unknown\XEW\XComGame\Config\DefaultModsProfile.ini - Notepad++
Plik Edycja Szukaj Widok Format Składnia Ustawienia Narzędzia Makra Uruchom Wtyczki Okno ?
Launch.log x DefaultEngine.ini x DefaultGameData.ini x DefaultMutatorLoader.ini x DefaultModsProfile.ini x XComModsProfile.ini x XComModShell.POL x DefaultMiniMods.ini x MiniModsCollection.pol x DefaultEngine.ini x D
ModRecord=(ModName="CustomStrategyAI", ModClassList=("XComStrategyAIMutator.XComStrategyAIMutator"), bEnableByDefault=false)
ModOptionBool=(ModName="CustomStrategyAI", VarName="AlienResearchMod", VarPath="XGStrategyAI_Mod.EnableAlienResearch", bDefault=false, eWidgetType=eWidget_Spinner)
```

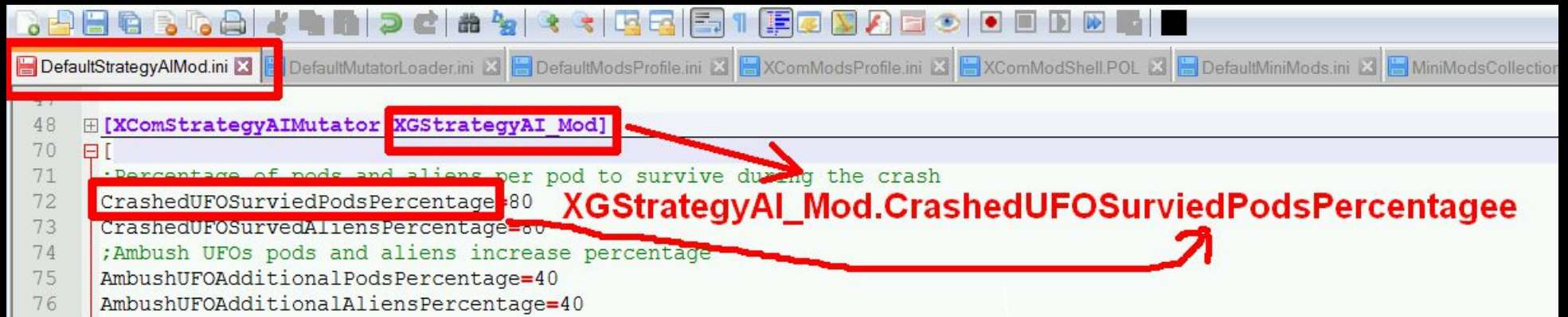


Not only checkbox

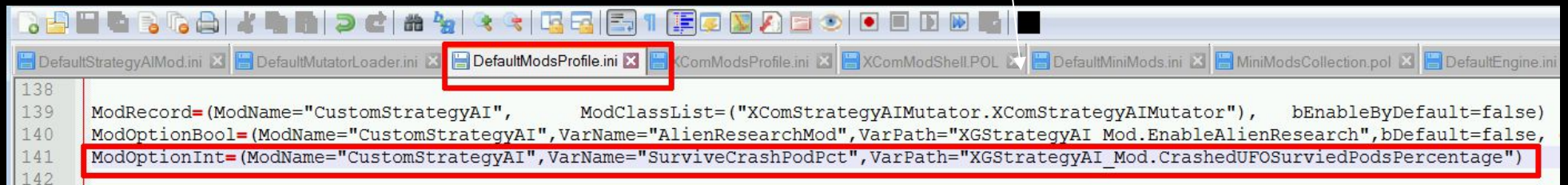
```
C:\Program Files (x86)\Steam\SteamApps\common\XCom-Enemy-Unknown\XEW\XComGame\Config\DefaultModsProfile.ini - Notepad++
Plik Edycja Szukaj Widok Format Składnia Ustawienia Narzędzia Makra Uruchom Wtyczki Okno ?
Launch.log x DefaultEngine.ini x DefaultGameData.ini x DefaultMutatorLoader.ini x DefaultModsProfile.ini x XComModsProfile.ini x XComModShell.POL x DefaultMiniMods.ini x MiniModsCollection.pol x DefaultEngine.ini x D
138 ModRecord=(ModName="CustomStrategyAI", ModClassList=("XComStrategyAIMutator.XComStrategyAIMutator"), bEnableByDefault=false)
139 ModOptionBool=(ModName="CustomStrategyAI", VarName="AlienResearchMod", VarPath="XGStrategyAI_Mod.EnableAlienResearch", bDefault=false, eWidgetType=eWidget_Combobox)
140
141 ModRecord=(ModName="UTModManager", ModClassList=("XComModShell_UTModManager"), bEnabledByDefault=true)
```



2.3. ModOptionInt



```
48 [XComStrategyAIMutator XGStrategyAI_Mod]
70 [
71 ;Percentage of pods and aliens per pod to survive during the crash
72 CrashedUFOSurviedPodsPercentage=80
73 CrashedUFOSurviedAliensPercentage=80
74 ;Ambush UFOs pods and aliens increase percentage
75 AmbushUFOAdditionalPodsPercentage=40
76 AmbushUFOAdditionalAliensPercentage=40
```



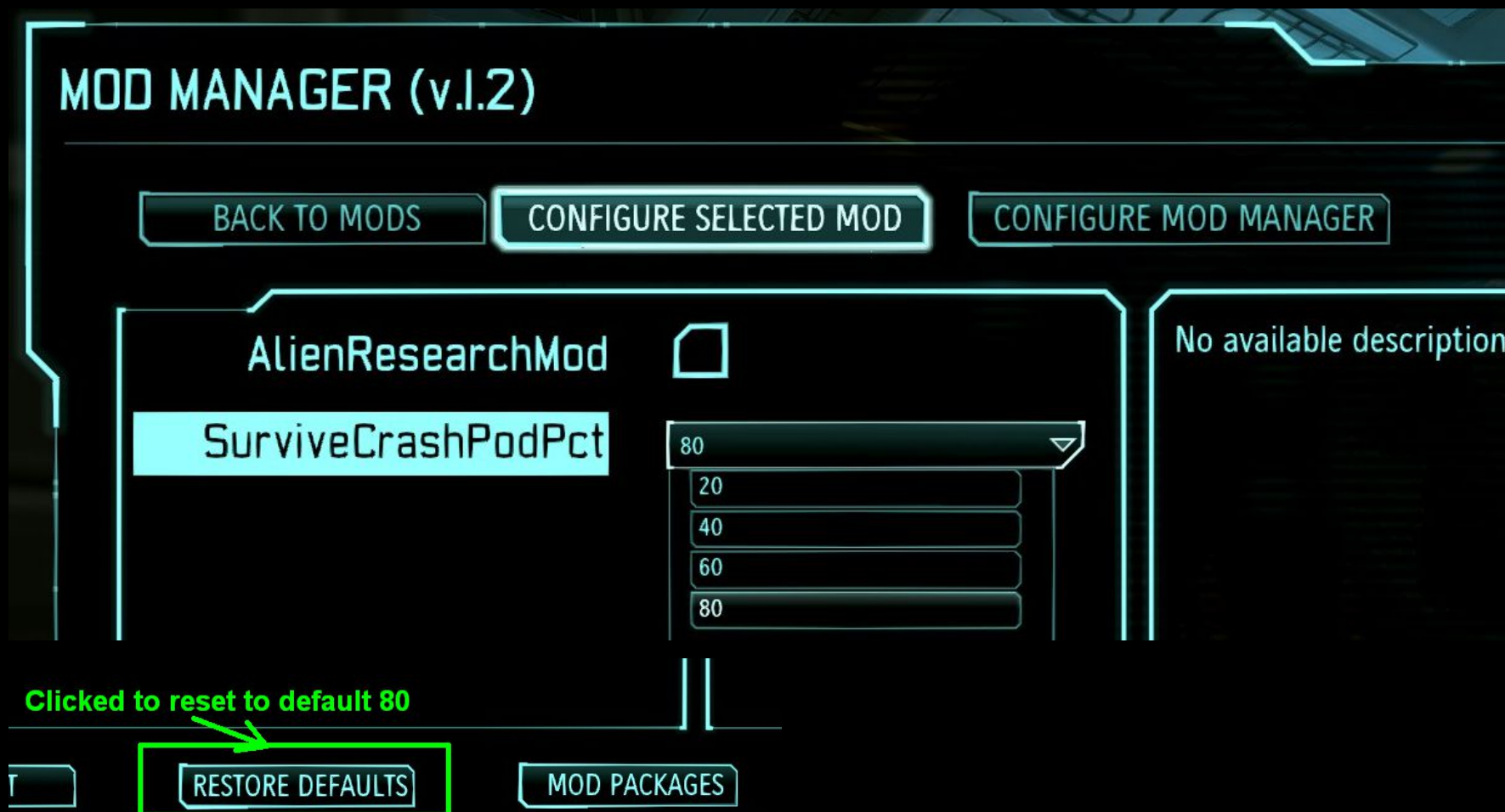
```
138
139 ModRecord=(ModName="CustomStrategyAI", ModClassList=("XComStrategyAIMutator.XComStrategyAIMutator"), bEnableByDefault=false)
140 ModOptionBool=(ModName="CustomStrategyAI", VarName="AlienResearchMod", VarPath="XGStrategyAI_Mod.EnableAlienResearch", bDefault=false,
141 ModOptionInt=(ModName="CustomStrategyAI", VarName="SurviveCrashPodPct", VarPath="XGStrategyAI_Mod.CrashedUFOSurviedPodsPercentage")
142
```




```
141 ModOptionInt=  
    (ModName="CustomStrategyAI", VarName="SurviveCrashPodPct", VarPath="XGStrategyAI_Mod.CrashedUFOSurviedPodsPercentage",  
     iMin=20, iMax=80, iStep=20, iDefault=80, eWidgetType=eWidget_Combobox)  
142
```

One long line, it is only displayed in 3 lines due to screen width

Any skipped parameter defaults to (respectively): iMin=0, iMax=100, iStep=1, iDefault=0, eWidgetType=eWidget_Spinner

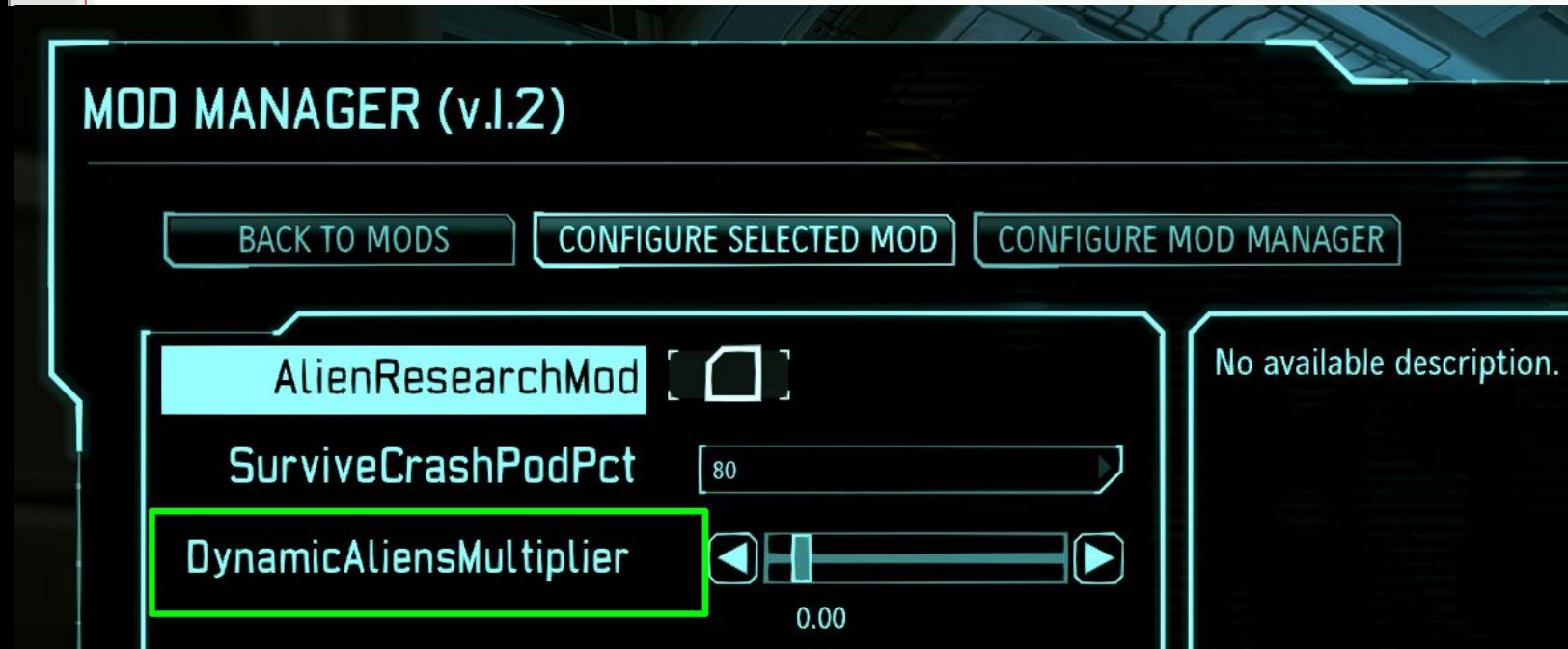
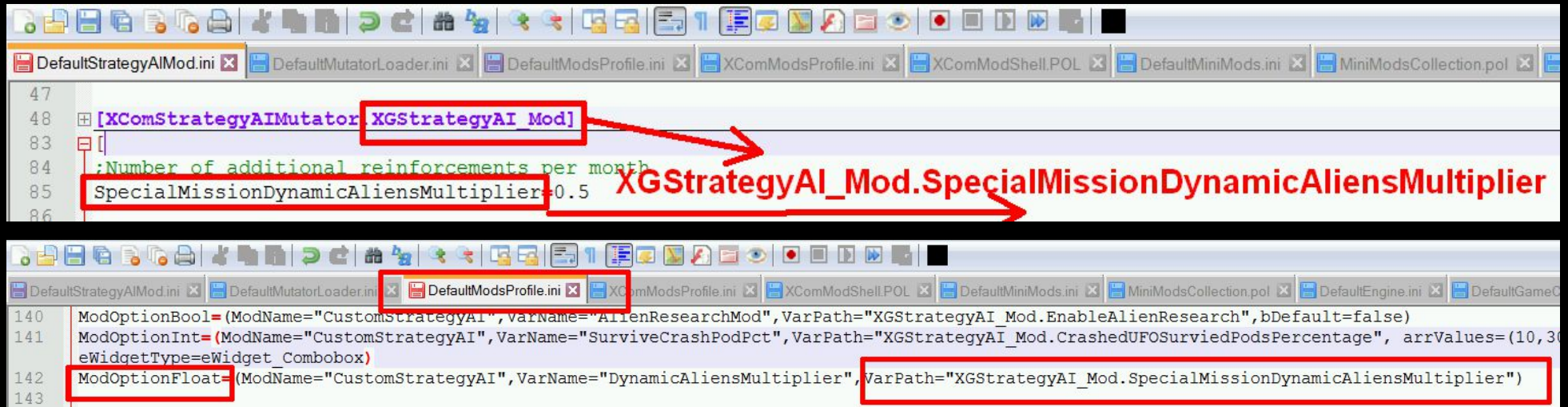



```
DefaultStrategyAIMod.ini x DefaultMutatorLoader.ini x DefaultModsProfile.ini x XComModsProfile.ini x XComModShell.POL x DefaultMiniMods.ini x MiniModsCollection.po
141 ModOptionInt=
    (ModName="CustomStrategyAI".VarName="SurviveCrashPodPct",VarPath="XGStrategyAI_Mod.CrashedUFOSurviedPodsPercentage",
142   arrValues=(10,30,50,80,100), iDefault=80, eWidgetType=eWidget_Combobox)
instead of iMin, iMax, iStep
```



Note: `arrValues` overrides `iMin`, `iMax`, `iStep`. If you provide both `arrValues` and `iMin`, `iMax`, `iStep` – only the list from `arrValues` will be used.

2.4. ModOptionFloat



```
C:\Program Files (x86)\Steam\SteamApps\common\XCom-Enemy-Unknown\XEW\XComGame\Config\DefaultModsProfile.ini - Notepad++
Plik Edycja Szukaj Widok Format Składnia Ustawienia Narzędzia Makra Uruchom Wtyczki Okno ?
DefaultStrategyAIMod.ini x DefaultMutatorLoader.ini x DefaultModsProfile.ini x XComModsProfile.ini x XComModShell.POL x DefaultMiniMods.ini x MiniModsCollection.pol x DefaultEngin
142 ModOptionFloat=
    (ModName="CustomStrategyAI",VarName="DynamicAliensMultiplier",VarPath="XGStrategyAI_Mod.SpecialMissionDynamicAliensMultiplier",
    fMin=0.0, fMax=0.9, fStep=0.1, fDefault=0.5, eWidgetType=eWidget_Combobox)
143
```

Many comboboxes are bad for performance. But useful in tutorial to show possible values

Any skipped parameter defaults to (respectively): fMin=0.0, fMax=1.0, fStep=0.1, fDefault=0.0, eWidgetType=eWidget_Slider




```
C:\Program Files (x86)\Steam\SteamApps\common\XCom-Enemy-Unknown\XEW\XComGame\Config\DefaultModsProfile.ini - Notepad++
Plik Edycja Szukaj Widok Format Składnia Ustawienia Narzędzia Makra Uruchom Wtyczki Okno ?
DefaultStrategyAIMod.ini x DefaultMutatorLoader.ini x DefaultModsProfile.ini x XComModsProfile.ini x XComModShell.POL x
142 ModOptionFloat=
    (ModName="CustomStrategyAI", VarName="DynamicAliensMultiplier", VarPath="XGStrategyAI_Mod
    arrValues=(0.25,0.5,0.7,0.9,1.25) eWidgetType=eWidget_Combobox)
```



ModOptionFloat also works with eWidget_Spinner which is also the default replacement widget when you pick a slider but number of possible values exceeds 101. For instance: fMax=2.0, fStep=0.01 (it creates 201 possible values from 0.00 to 2.00 so slider will be replaced with spinner)

2.5. ModOptionPerk

2.6. ModOptionTech

2.7. ModOptionItem

2.8. ModOptionFoundryTech

ALL OF THE ABOVE SHARE THE SAME PATTERN AND ARE USED THE SAME WAY – just for different types of enumerations.

```
163 [MiniModsCollection.MiniModsStrategy]
216 [...]
217 optionally lock the feature behind a tech research (search for id/enums in DGC.ini)
218 MELDHEAL_TECH_REQUIRED=eTech_Meld
219 finally you can have a confirmation window to prevent accidental click, just set TRUE below
220 MELDHEAL_CONFIRM_POPUP=FALSE
```

Did I mention that paths are not case-sensitive?

MiniModsStrategy.MeldHEal_teCH_reQUIRED

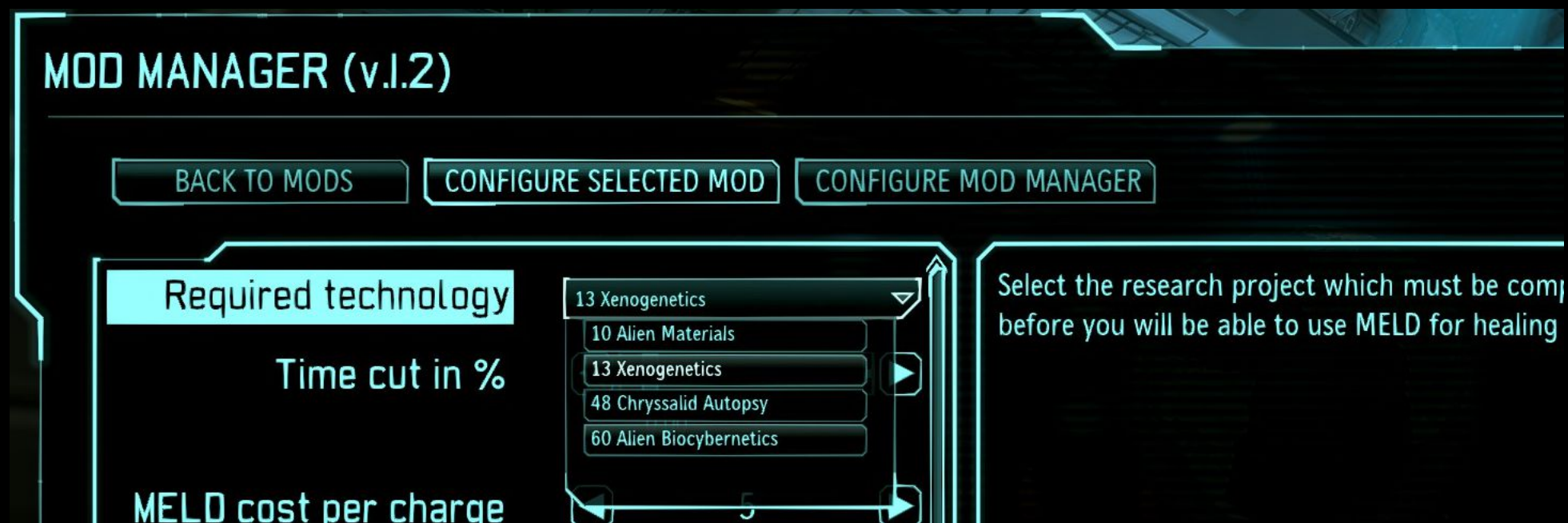
```
303 MiniMods have their own options' container and .ini. But the lines can be commented out here and added to DefaultModsProfile.ini and will work as well
304 [MiniModsCollection.MiniModsOptionsContainer]
305 ModOptionTech= (Idx=0, ModName="MeldHealing", VarName="MELDHEAL_TECH_REQUIRED", VarPath="MiniModsStrategy.MeldHEal_teCH_reQUIRED", iDefault=eTech_Meld)
306
307
```

MiniMods have their own options' container and .ini. But the lines can be commented out here and added to DefaultModsProfile.ini and will work as well

eTech_Meld stands for 13

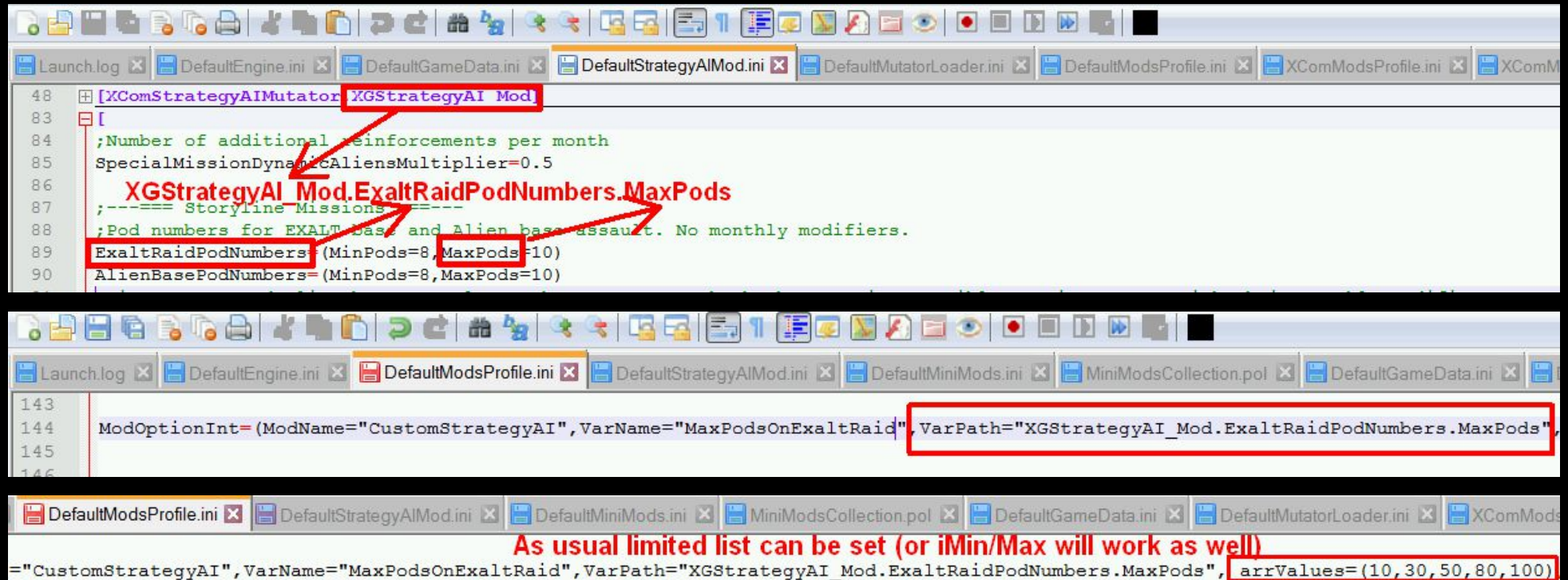
iMax=, iMin=, iStep= don't work for Tech, Perk, Item, FoundryTech





3. BUILDING PATHS TO CONFIG VARIABLES - ADVANCED

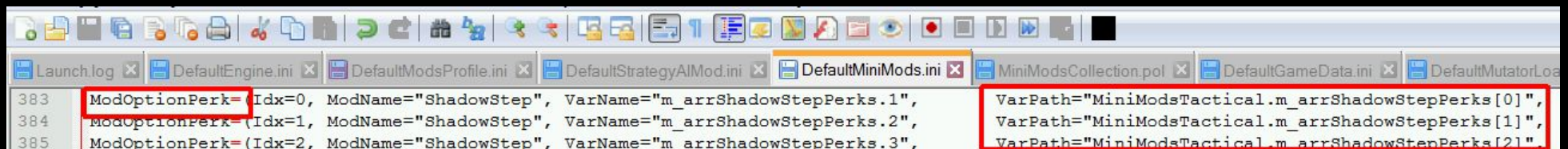
3.1. Building VarPath to struct (composed) variables



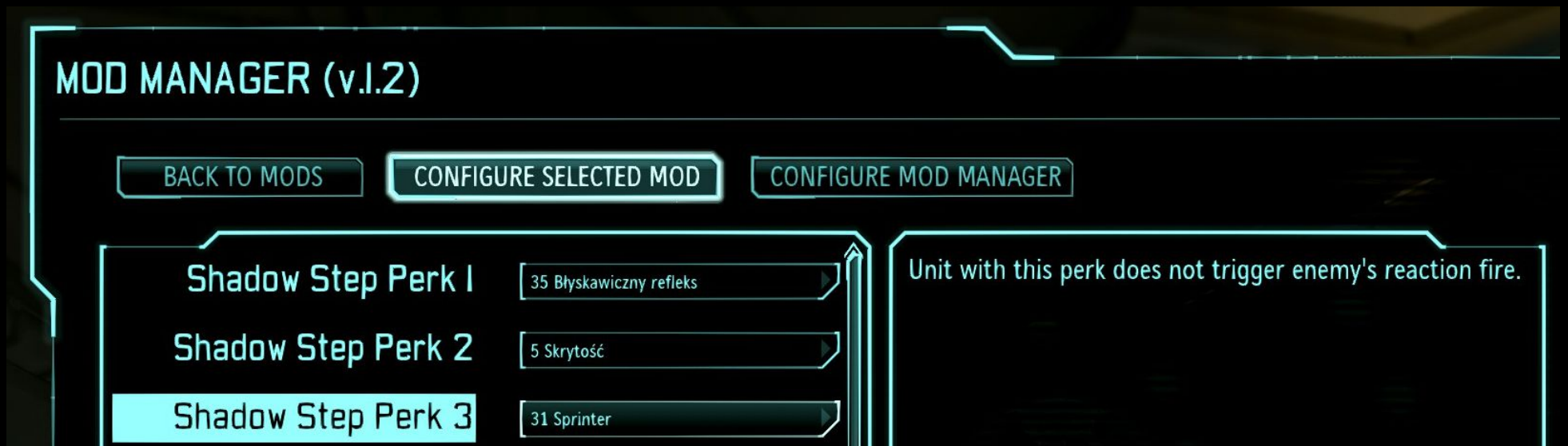
3.2. Building VarPath to array elements



```
1 [MiniModsCollection.MiniModsTactical]
2 0 m_arrShadowStepPerks=35 MiniModsTactical.m_arrShadowPerks[0]
3 1 m_arrShadowStepPerks=5 MiniModsTactical.m_arrShadowPerks[1]
4 2 m_arrShadowStepPerks=31 MiniModsTactical.m_arrShadowPerks[2]
5 3 m_arrShadowStepPerks=0
```



```
383 ModOptionPerk=(Idx=0, ModName="ShadowStep", VarName="m_arrShadowStepPerks.1", VarPath="MiniModsTactical.m_arrShadowStepPerks[0]",
384 ModOptionPerk=(Idx=1, ModName="ShadowStep", VarName="m_arrShadowStepPerks.2", VarPath="MiniModsTactical.m_arrShadowStepPerks[1]",
385 ModOptionPerk=(Idx=2, ModName="ShadowStep", VarName="m_arrShadowStepPerks.3", VarPath="MiniModsTactical.m_arrShadowStepPerks[2]")
```



You must believe that these words in Polish stand for perks: Lightning Reflexes, Low Profile and Sprinter.

3.3. Building VarPath to elements of arrays holding struct variables

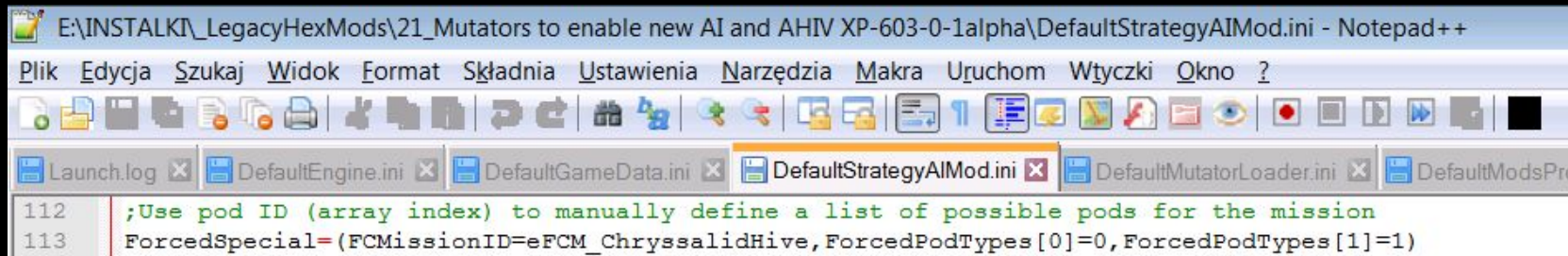
```
47  
48 [XComStrategyAIMutator XGStrategyAI Mod]  
95  
96 0 AlienBasePodTypes=(ID=EPodTypeMod_Soldier, TypeChance=50)  
97 1 AlienBasePodTypes=(ID=EPodTypeMod_Terror, TypeChance=25)  
98 2 AlienBasePodTypes=(ID=EPodTypeMod_Elite, TypeChance=25)  
99
```

XGStrategyAI_Mod.AlienBasePodTypes[0].TypeChance

```
141 ModOptionInt=(ModName="CustomStrategyAI", VarName="SurviveCrashPodPct", VarPath="XGStrategyAI_Mod.CrashedUFOSurvivedPodsPercentage", arrValu  
142 ModOptionFloat=(ModName="CustomStrategyAI", VarName="DynamicAliensMultiplier", VarPath="XGStrategyAI_Mod.SpecialMissionDynamicAliensMultipl  
eWidgetType=eWidget_Combobox)  
143  
144 ModOptionInt=(ModName="CustomStrategyAI", VarName="MaxPodsOnExaltRaid", VarPath="XGStrategyAI_Mod.ExaltRaidPodNumbers.MaxPods", arrValues=(  
145  
146 ModOptionInt=(ModName="CustomStrategyAI", VarName="AlienBaseSoldierPodChance", VarPath="XGStrategyAI_Mod.AlienBasePodTypes[0].TypeChance",  
147
```

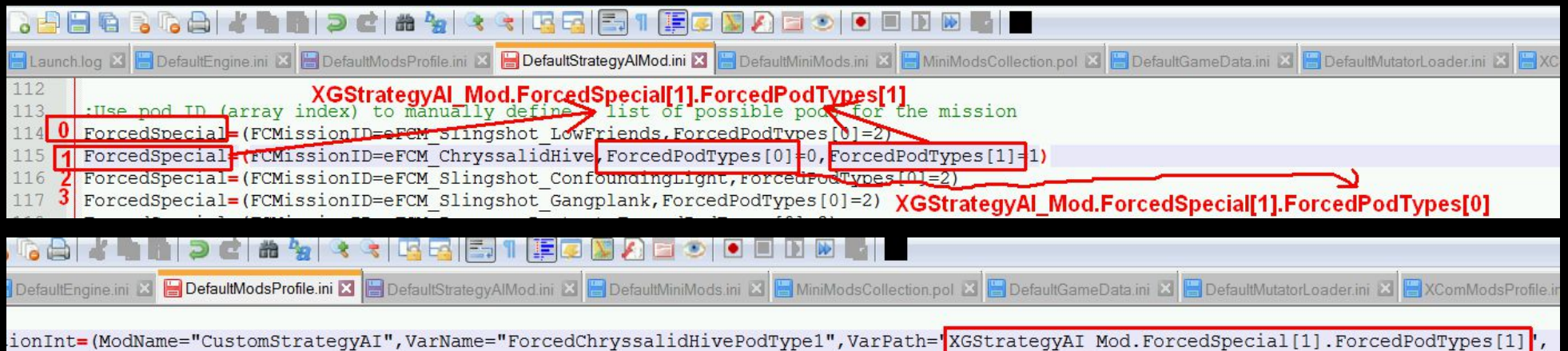
```
DefaultModsProfile.ini x DefaultStrategyAIMod.ini x DefaultMiniMods.ini x MiniModsCollection.pol x DefaultGameData.ini x DefaultMutatorLoader.ini x XComModsProfile.in  
"CustomStrategyAI", VarName="SurviveCrashPodPct", VarPath="XGStrategyAI_Mod.CrashedUFOSurvivedPodsPercentage", arrValues=(10,30,50,80,100), iDefa  
e="CustomStrategyAI", VarName="DynamicAliensMultiplier", VarPath="XGStrategyAI_Mod.SpecialMissionDynamicAliensMultiplier", arrValues=(0.25,0  
mbobox)  
"CustomStrategyAI", VarName="MaxPodsOnExaltRaid", VarPath="XGStrategyAI_Mod.ExaltRaidPodNumbers.MaxPods", arrValues=(10,30,50,80,100), iDefa  
Skipped iMin and iMax, so 0 and 100 will be used for them (respectively)  
"CustomStrategyAI", VarName="AlienBaseSoldierPodChance", VarPath="XGStrategyAI_Mod.AlienBasePodTypes[0].TypeChance", iStep=5, iDefault=50,
```


3.4. Arrays inside a struct



```
112 ;Use pod ID (array index) to manually define a list of possible pods for the mission
113 ForcedSpecial=(FCMissionID=eFCM_ChryssalidHive, ForcedPodTypes[0]=0, ForcedPodTypes[1]=1)
```

ForcedPodTypes is an array inside **ForcedSpecial** struct variable.



```
112 :Use pod ID (array index) to manually define a list of possible pods for the mission
113 ForcedSpecial=(FCMissionID=eFCM_Slingshot_LowFriends, ForcedPodTypes[0]=2)
114 0 ForcedSpecial=(FCMissionID=eFCM_ChryssalidHive, ForcedPodTypes[0]=0, ForcedPodTypes[1]=1)
115 1 ForcedSpecial=(FCMissionID=eFCM_ChryssalidHive, ForcedPodTypes[0]=0, ForcedPodTypes[1]=1)
116 2 ForcedSpecial=(FCMissionID=eFCM_Slingshot_ConfoundingLight, ForcedPodTypes[0]=2)
117 3 ForcedSpecial=(FCMissionID=eFCM_Slingshot_Gangplank, ForcedPodTypes[0]=2)
```

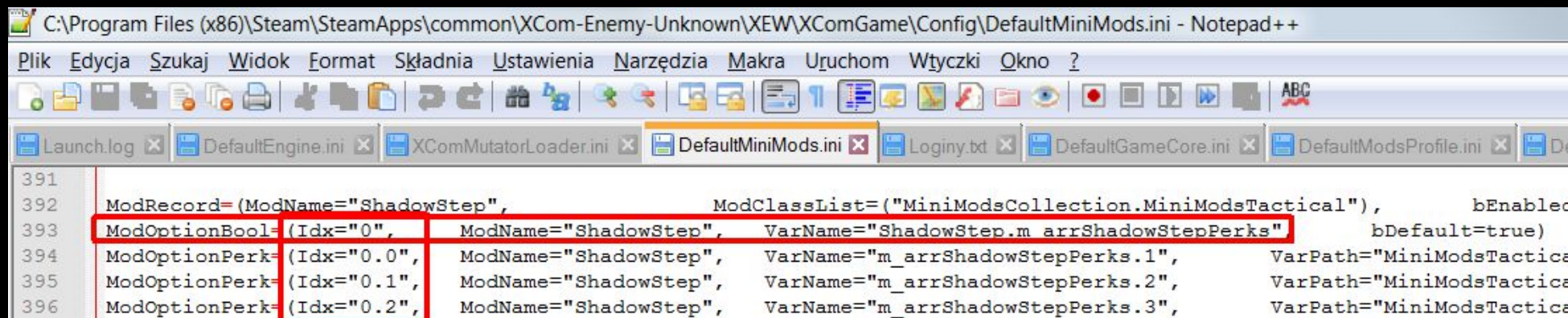
XGStrategyAI_Mod.ForcedSpecial[1].ForcedPodTypes[1]

XGStrategyAI_Mod.ForcedSpecial[1].ForcedPodTypes[0]

ionInt=(ModName="CustomStrategyAI", VarName="ForcedChryssalidHivePodType1", VarPath='XGStrategyAI_Mod.ForcedSpecial[1].ForcedPodTypes[1]',

4. USING IDX TO BUILD MULTI-LEVEL OPTIONS

You can use Idx property (string) to build “options for an option”. Let’s see an example for Shadow Perks. Check again [3.2](#). Let’s add “Shadow Step Perks” button. Clicking on the button will show the list of perks to configure.



```
391
392 ModRecord=(ModName="ShadowStep", ModClassList=("MiniModsCollection.MiniModsTactical"), bEnabled
393 ModOptionBool=(Idx="0", ModName="ShadowStep", VarName="ShadowStep.m_arrShadowStepPerks" bDefault=true)
394 ModOptionPerk=(Idx="0.0", ModName="ShadowStep", VarName="m_arrShadowStepPerks.1", VarPath="MiniModsTactical
395 ModOptionPerk=(Idx="0.1", ModName="ShadowStep", VarName="m_arrShadowStepPerks.2", VarPath="MiniModsTactical
396 ModOptionPerk=(Idx="0.2", ModName="ShadowStep", VarName="m_arrShadowStepPerks.3", VarPath="MiniModsTactical
```

ModOptionBool (a checkbox) can spawn additional “OPTIONS” button. The button will be spawned if there are other options (of any type: perk, int, float, whatever) with the same ModName and with Idx extending the Idx. The “extension” is done using a dot “.” Here: 0.0, 0.1 and 0.2 extend 0

Below the result – a button appears AND widgets for shadow step perks no longer appear on the main list of options.



Instead the options for configuring shadow step perks are listed after clicking the button. So – you click the button next to option with `Idx="0"` and it shows options with `Idx="0.x"`.



Final notes and hints

- Idx **is a string not necessarily number. You can very well make it like:** Idx="Main", Idx="Main.OptionA", Idx="Main.OptionB" **etc. The options are sorted by Idx in alphabetical order.**
- Idx **handles more than one sub-level:**

```
441 ModOptionBool=(Idx="3",ModName="ScoutSense", VarName="m_bScoutSenseScalesWithRe
442 ModOptionInt=(Idx="3.1", ModName="ScoutSense", VarName="m_iScoutSenseLvl1Rank",
443 ModOptionBool=(Idx="3.2",ModName="ScoutSense", VarName=" ", ReadOnly=true)
444 ModOptionInt=(Idx="3.3", ModName="ScoutSense", VarName="m_iScoutSenseLvl2Rank",
445 ModOptionInt=(Idx="3.4", ModName="ScoutSense", VarName="m_iScoutSenseLvl3Rank",
446 ModOptionInt=(Idx="3.2.0", ModName="ScoutSense", VarName="ScoutSenseRange0",
447 ModOptionInt=(Idx="3.2.1", ModName="ScoutSense", VarName="ScoutSenseRange1",
448 ModOptionInt=(Idx="3.2.2", ModName="ScoutSense", VarName="ScoutSenseRange2",
```

- **Additional button requires using** ModOptionBool.
- If you want the button for other types of ModOption.... you can always a dummy/empty ModOptionBool. In the screenshot above see how Idx="3.2" is ModOptionBool with empty (just a space) VarName so that it can be then extended to Idx="3.2.x"
- Provide ReadOnly=true parameter to hide the checkbox for a dummy option. Again see the line for Idx="3.2".

