

Displaying the Cityscape in the AGE Engine – Simple Modular Mode



There are 4 display styles in the AGE engine, the one described here is the Simple ModularMode. The modes are (FYI):

Old Hard Coded Mode: BOA, WIA, ROP: Structures have all a unique name, example FortDepot.png or VillageDepot.png. *Deprecated*

Old Modular Mode: AACW. The cityscape is made of several sprites depending of the local production, city size, level of entrenchment. *Deprecated*

Simple Modular Mode: NCP, Future New Games. This mode has been generalized for modding purpose and is the object of this document. Will work well for any new game not requiring advanced economics (i.e using only money, WSU and conscripts).

Advanced Modular Mode: VGN and any games requiring advanced economics. The mode is style not generalized. Implies a countryscape and half the cityscape showing industries.

Settings: Variables

The variables used to control the display are all located in *Settings\UserInterface.opt*.

Basic Settings

The first to set is to indicate we are using Simple Modular

```
inoStructureExportStyle = 2 // Simple Modular style
```

The minimum zoom in the engine is 30% (not hard coded in fact).

```
inoCSE_ZoomNoShow = 30 // zoom level where there is no export at all (this value or under)
```

This allows us to not show any CS at or below this zoom (useful to see all the map without too much lag).

Font Settings

The next series is about the font used to display the structure name on the plate supporting it. Depending of the zoom, the structure name has to be shifted more or less to stay in the middle of the plate.

```
inoCSE_VertOffsetNameZoom40 = -4 // For the name of the CS, the vertical offset to impact on the plate label when in zoom 40 or less
```

```
inoCSE_VertOffsetNameZoom60 = 0
```

```
inoCSE_VertOffsetNameZoom80 = 2
```

```
inoCSE_VertOffsetNameZoom100 = 4
```

```
inoCSE_NameZoomLevelVSmall = 80 // at which zoom (or less) we switch to Very Small font (standard is small font)
```

ExMap positioning Settings

For some games, Exmap was used in such way that the sprites are positioned at the coordinate entered in Exmap. For the most recent games, the sprite is centered around this position:

```
inoCSE_RecenterSprite = 1 // if true, the cityscape/harbor sprite will be shifted by -half its size in height and width
```

Style Aliases

The Simple Modular Mode is using a RegionStyle / CityStyle concept: each region has a style and the structure displayed will be shown differently depending of this style (i.e Western Europe, Orthodox, Oriental, etc.)

The alias folder should have these aliases defined:

```
$csiNone      = -1
$csiWestEurope = 0
$csiSouthEurope = 1
$csiMiddleEast = 2
$csiNorthEurope = 3
$csiOrthodox   = 4
$csiBlackAfrica = 5
$csiAfrica     = 5
$csiIndia      = 6
$csiSouthEastAsia = 7
$csiChina      = 8
$csiLatino     = 9
$csiNorthAmerica = 10
```

Region Style Settings

Then a region can have a style attached (or changed dynamically by event) with the *SetRegionStyle* script command (or using the appropriate column in the regions tab of a setup).

For a city, the level of the city, the fort level in the region and the region style will combine to get the name of the graphic file to use. There are 2 encoding formats possible, one is for the simple mode and one is for the advanced mode:

inoCSE_CityStyleEncode = 0 // 0: Uses gxCityStylesNames, 1: VGN scheme, adv econ

For the simple mode, a value of 0 is expected. The file names should be:

Cityꝰ_EuC_Levꝰ.png	Central Europe
Cityꝰ_EuS_Levꝰ.png	South Europe
Cityꝰ_Ori_Levꝰ.png	Oriental
Cityꝰ_Scan_Levꝰ.png	North Europe
Cityꝰ_Rus_Levꝰ.png	Russian / Orthodox
Cityꝰ_BlK_Levꝰ.png	Black Africa
Cityꝰ_Afri_Levꝰ.png	North Africa
Cityꝰ_Ind_Levꝰ.png	Indian (Asia)
Cityꝰ_SEA_Levꝰ.png	South East Asia
Cityꝰ_Chin_Levꝰ.png	Chinese
Cityꝰ_Lat_Levꝰ.png	Latin America
Cityꝰ_Ame_Levꝰ.png	North America

The first ꝰ will be replaced by the structure level converted to a value of 1 to 4, with these equivalences:

inoCSE_MaxCityLvISize1 = 3 // City of this size uses the size 1 style of city

inoCSE_MaxCityLvISize2 = 6

inoCSE_MaxCityLvISize3 = 10

inoCSE_MaxCityLvISize4 = 99

The second ꝰ will be replaced by the fortification level, from 0 (no fort) to

inoCSE_MaxFortLevel = 3

It is also possible to have an alternate graphic if the weather is harsh or very harsh:

inoCSE_HaveHarshStyleCS = 0 // If weather is harsh or worse, use Harsh_ prefix before (beware of the Snow/Sand storm problem)

If set to 1, then a complete alternate graphic set should be provided with harsh_ as a prefix. As the note indicates, be sure that if you show a snowy city in a given region style, that all weather areas in this style get snow when in harsh weather, and not a monsoon or sand storm weather.

Displaying a depot (with or without any other building)

Once the code starts to check on how to display a cityscape, it will combine several elements into a single unique file to use (as we said, depending of region style, fort level and city level) plus it will add up to 2 modules for a possible depot.

inoCSE_ModDepotNorm = CS_ammo.png



inoCSE_ModDepotLow = CS_supply.png



If you want a depot to show the *DepotLow* icon if under a threshold in supply and then another image (*DepotNorm*) if above, you will set

inoCSE_ModDepotBoth = 0 // if true, then above x supply, we show both the low and the norm images

to zero. If you want both to be shown if the supply is above a certain threshold, then you'll use a value of 1:

inoCSE_ModDepotBoth = 1

The supply threshold used is:

inoCSE_SupplyThresoldLow = 50 // for modular if this value or less supply then use inoCSE_ModDepotLow otherwise inoCSE_ModDepotNorm

Now, if a depot is without a city, it must also be shown as an independent sprite, so here you have to specify a file to show a 'depot only', in the structure file (.stc) of the depot:



DepotOnly.png

The 3 possible variations to the file format are:

DepotOnly.png: the same file will always be used

DepotOnly α .png: A variation by depot level is implemented

DepotOnly α _ β .png: A variation by region style then by depot level is implemented

Plus a possible **harsh_** prefix ...

Fort without a city (with or without a depot)

It works as if there is a city for everything except in this case the city level is 0, so you'll use something like: **City0_Ori_Lev1.png** to show an Oriental level 1 fort without a city.

Camp, Redoubt, etc.



These structures are 'special level 1 city pretending to be a fort' ... Here you don't want to add anything to them: only one sprite must be shown, but no depot indicator. In the structure (.stc) file you will then specify

Attributes = *NoModularDisplay*

In the same redoubt.stc, you'll indicate the name of the file to use, i.e

Redoubt.png

or

Redoubt α .png

If a α is provided it will be used to determine a region style. As with others building, a harsh_ prefix can be used too.

Harbor

The Harbor can be either a single file used for everything or have these modulations:

- a) Change depending of the orientation (4 possibilities)
 - 0: the harbor extends to the NW
 - 1: NE
 - 2: SW
 - 3: SE
- b) Harsh_ weather prefix



The simple case would be **Harbor.png**, but if there is a facing, **Harbor α .png** will be used in the structure file (and 4 will be provided Harbor0.png to Harbor3.png)

City scape Flag



(the CSFlag is the Soviet Flag to the right here)

The CSFlag is positioned with

inoCSE_CSFlagOffsetX = 47 // offset of the CS flag in X / compared to the image of the structure

inoCSE_CSFlagOffsetY = -5 // offset of the CS flag in Y

Its name is entered with the key **CSFlagImg** in the faction file

A possible variation is to indicate the city level in the file, as in AACW, in this case a π is expected in the filename (and adding one will let the code understand you want the city level).

Groups Indicators

Groups indicators are icons showing the number of groups (land stacks or fleets) in the cityscape. They can be turned off simply by using:

inoCSE_GPIconNoShowZoom = 50 // don't show group indic under this zoom

If a large value like 200 is used, the indicators will never show.

The highest number to use is determined by:

inoCSE_GPIconMaxVal = 20 // What is the max number printed on the Group icon

the position of both indicators is using:

inoCSE_GPLandIconOffsetX = -30 // offset of the Land GP indic in X / compared to the image of the structure

inoCSE_GPLandIconOffsetY = 35 // offset of the Land CS indic in Y

inoCSE_GPNavIconOffsetX = -30 // offset of the Nav GP indic in X / compared to the image of the structure

inoCSE_GPNavIconOffsetY = 55 // offset of the Nav CS indic in Y

The file names are (improperly) hardcoded to

CS_Flag_unit1.png and **CS_Flag_fleet1.png** for the icons showing one group/fleet, etc.

Units Indicators

Units indicators are bullets showing the number of units (land or naval) in the cityscape.



As for the groups indicators, they can be hidden at a high zoom level (or always, depending of the settings), with:

```
inoCSE_UnitBulletNoShowZoom = 50 // don't show units bullets under this zoom
```

They can either be shown 'as is' or above a little plate, as in the image:

```
inoCSE_UnitBulletsPlate = CityBullets_Back.png
```

if the value is ''(empty), then no plate will be shown.

Then, you have to decide if they are stacked (the land indicator and the naval indicator), as the image, or if their position is independent from one another.

```
inoCSE_UnitBulletsStacked = 1 // the 2 bullets serie are stacked above one another, in this case  
inoCSE_UnitNavBulletsOffsX_ is the offset compared to the first series
```

The first serie of bullets (Land Bullets) will use these offsets:

```
inoCSE_UnitLandBulletsOffsX = 0
```

```
inoCSE_UnitLandBulletsOffsY = 96
```

The second serie (naval) will use these offsets:

```
inoCSE_UnitNavBulletsOffsX = 0
```

```
inoCSE_UnitNavBulletsOffsY = 11
```

If they are stacked, then the naval bullets will be displayed using the sum of both offsets. In this case, the naval bullets are show 11 pixels below the land bullets.

If they are not stacked, each pair of offsets will be used independently.

A maximum of:

inoCSE_MaxBulletsNb = 17

Will be shown. The file names to use for the bullets are hard coded to:

CityBullets_Blue_1.png to CityBullets_Blue_17.png (if 17 are allowed)

CityBullets_Red_1.png to CityBullets_Red_17.png (if 17 are allowed)

CityBullets_Orange_1.png to CityBullets_Orange_17.png (if 17 are allowed)

CityBullets_Green_1.png to CityBullets_Green_17.png (if 17 are allowed)

The 4 color sets must be provided. The blue set is used for ships in prime condition. The green set is used for land units in prime condition. The Orange & Red sets are used for weakened units in all filter mode except the supply filter mode where the colors coding will show instead the level of supply (red = out of supply)

Number of bullets displayed:

This is 'somehow' akin to the unit numbers ... In fact, this will be the command cost of the stack, with at least 1 per unit. Each group of CP will show one bullet. The amount of CP to show a bullet is using:

inoCSE_UnitsPerBullets = 3 // nb of units (but counted in CP! with at least one per unit) to show one bullet

Structure Name

The structure name is shown above a Plate called Structure Name Plate. The names of the files used for this purpose is hard coded and must support names up to 180 pixels long. See the */Graphics/Plate&Stars* directory.

Plate_40.png to Plate_180.png

The structure name can have an offset to the start of the plate:

inoCSE_PlateNameOffsX = 0 // offset of the Plate Name CS indic in X

inoCSE_PlateNameOffsY = 75 // offset of the Plate Name CS indic in Y

The plate can also show the structure level, if it is not shown within the structure flag itself (see above). In this case

inoCSE_StrucLevelOnPlateOffsX = 6 // horizontal offset of the structure level on the plate

inoCSE_StrucNameOnPlateOffsX = 28 // horizontal offset of the structure name on the plate

will be used. The code deduces from the absence or presence of α in the names of the flag if you want to display the level here or in the flag.

Special Region Indicators

If the region is an owned or unowned objective or if a capital, an indicator will be added after the Structure Plate Name:

inoCSE_GenericCapitalImg = Capital.png

inoCSE_ObjReceiveImg = Obj Receive.png

inoCSE_SmthNotReceiveImg = Smth Not Receive.png

The Generic Capital image will only be used if the faction doesn't have a dedicated capital image indicated. To specify a custom capital image, use in the faction file:

CapitalSymbol

The special indicator is always shown after the name of the structure.

Summary of the variables used in Simple Modular Mode

inoStructureExportStyle = 2 // Simple Modular style

inoCSE_ZoomNoShow = 30 // zoom level where there is no export at all (this value or under)

inoCSE_VertOffsetNameZoom40 = -4 // For the name of the CS, the vertical offset to impact on the plate label when in zoom 40 or less

inoCSE_VertOffsetNameZoom60 = 0

inoCSE_VertOffsetNameZoom80 = 2

inoCSE_VertOffsetNameZoom100 = 4

inoCSE_NameZoomLevelVSmall = 80 // at which zoom (or less) we switch to Very Small font (standard is small font)

inoCSE_RecenterSprite = 1 // if true, the cityscape/harbor sprite will be shifted by -half its size in height and width

inoCSE_MaxFortLevel = 3

inoCSE_MaxCSStyle = 10

inoCSE_MaxCityLv1Size1 = 3 // City of this size uses the size 1 style of city

inoCSE_MaxCityLv1Size2 = 6

inoCSE_MaxCityLv1Size3 = 10

inoCSE_MaxCityLv1Size4 = 99

inoCSE_HaveHarshStyleCS = 0 // If weather is harsh or worse, use Harsh_ prefix before (beware of the Snow/Sand storm problem)

inoCSE_SupplyThresoldLow = 50 // for modular if this value or less supply,

inoCSE_ModDepotLow = CS_supply.png // then use inoCSE_ModDepotLow otherwise DepotNorm

inoCSE_ModDepotNorm = CS_ammo.png

inoCSE_ModDepotBoth = 0 // if true, then above x supply, we show both the low and the norm images

inoCSE_CityStyleEncode = 0 // 0: Uses gxCityStylesNames, 1: VGN scheme, adv econ

inoCSE_CSFlagOffsetX = 47 // offset of the CS flag in X / compared to the image of the structure

inoCSE_CSFlagOffsetY = -5 // offset of the CS flag in Y

inoCSE_GPIconNoShowZoom = 50 // don't show group indicis under this zoom

inoCSE_GPIconMaxVal = 20 // What is the max number printed on the Group icon

inoCSE_GPLandIconOffsetX = -30 // offset of the Land GP indic in X / compared to the image of the structure

inoCSE_GPLandIconOffsetY = 35 // offset of the Land CS indic in Y

inoCSE_GPNavIconOffsetX = -30 // offset of the Nav GP indic in X / compared to the image of the structure

inoCSE_GPNavIconOffsetY = 55 // offset of the Nav CS indic in Y

inoCSE_PlateNameOffsX = 0 // offset of the Plate Name CS indic in X

inoCSE_PlateNameOffsY = 75 // offset of the Plate Name CS indic in Y

inoCSE_PlateNameOffsAltX = 40 // Alt offset of the Plate Name CS indic in X (used if the structure has AltPlateNameOffs =1)

inoCSE_PlateNameOffsAltY = 110 // Alt offset of the Plate Name CS indic in Y

inoCSE_GenericCapitallmg = Capital.png

inoCSE_ObjReceiveImg = Obj Receive.png

inoCSE_SmthNotReceiveImg = Smth Not Receive.png

inoCSE_UnitBulletNoShowZoom = 50 // don't show units bullets under this zoom

inoCSE_UnitBulletsPlate = CityBullets_Back.png

inoCSE_UnitBulletsStacked = 1 // the 2 bullets serie are stacked above one another, in this case inoCSE_UnitNavBulletsOffsX_ is the offset compared to the first serie

inoCSE_UnitsPerBullets = 3 // nb of units (but counted in CP! with at least one per unit) to show one bullet

inoCSE_MaxBulletsNb = 17

inoCSE_UnitLandBulletsOffsX = 0

inoCSE_UnitLandBulletsOffsY = 96

inoCSE_UnitNavBulletsOffsX = 0

inoCSE_UnitNavBulletsOffsY = 11

inoCSE_StrucLevelOnPlateOffsX = 6 // horizontal offset of the structure level on the plate

inoCSE_StrucNameOnPlateOffsX = 28 // horizontal offset of the structure name on the plate