

# **Dominion of the Sword**

## **REBUILD**

**Developer's Manual**

**V3.1**

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# 1. Introduction

DotS Rebuild is a system of tools that interlinks the Google Spreadsheets with the mod's files. It allows modding of these files automatically by using only the downloaded data from the Google Spradsheet.

That is Rebuild in a nutshell – modding has never been so easy!

All you need to do in order to develop the mod is to put the data in the DotS Code. DotS Code is a Google Spreadsheet formatted so it can be used in Rebuild and is convenient for user as well as it is clearly defined and allows various operations such as sorting according to different criteria. Due to the limitations of Google Spreadsheets there is one extra Google Spreadsheet for names.

When you entered your data you will simply download the given List as a Text and place this downloaded file into /Rebuild/!G2DC/ which is located in the main DotS folder. In the main DotS folder is also Rebuild.bat which you run once you have put the updated data in !G2DC directory. Sounds simple enough? It is explained step by step in the Chapter 3 – DotS Code so do not worry.

But all of this though extremely simple may still be quite daunting and that is why there is this Manual which outlines DotS Code and gives you advice on how to use it. Basically all what you find here is also inside the comments of each DotS Code's headers. As long as you follow the instructions (t)here AND the example which is always given you will get a hang of things pretty fast. So don't hesitate and get to it!

**Remark for Coders:** While this Manual is written mainly for Users/Researchers there are also some remarks for you coders who do understand the mod's files and would like to develop Rebuild itself. See Chapter 5!

## 2. Changelog

### Ver 3.1

- Added PSFLocator
  - Minor tweaks to some templates
- 

### Ver 3.0

- Removed many redundant tools: textMerge, BinEditor, nameVerifier, TextCreator
  - Added new tool: Text Files Merger (TFM)
  - Updated G2DC to handle datasets containing ANSI special characters (like \n)
  - Greatly simplified the structure of Rebuild
  - Removed many redundant commands in Rebuild.bat
  - Employed only single DATASET.yaml
  - Revamped DotS Code unifying everything in single Google Spreadsheet
  - Making each column in DotS Code having unique name
  - Updating templates to this new structure
  - Added these files to templates: strat.txt, shared.txt, tooltips.txt, quotes.txt, descr\_sm\_resources.txt, export\_descr\_guilds.txt
  - Removed old merge files of CS and EDCT (traits). They are now kept in the main DotS directory inside /Old Files/ directory.
  - All previously modded files are kept alongside the new ones created by Rebuild as {original\_name}\_original.txt for reference and data deposit.
- 

### Ver 2.0

- Completely revamped structure of Rebuild
  - Streamlined the procedure and some of the templates
  - Rewritten this manual
- 

### Ver 1.3

- Updated textMerge (encoding support, multiple configs)
- Added EDU and related files to Rebuild.

### Ver 1.2

- Added CS
- Added fully ancillaries files
- Optimized Rebuild.bat
- Includes comments (REmarks) in Rebuild.bat
- Updated G2DC to support larger names of files.

### Ver 1.1

- Further optimized the procedure
- Use of sub-folders

- Use of supporting templates to create templates
- descr\_strat.txt is now included as well as many other files
- Outstanding procedure removed as it is now obsolete.
- Update of dots\_replicator.exe to support more encodings and new macros.

Ver 1.0

- G2DC is now automatic program
- Datasets are created directly from google downloads
- Files included: descr\_sm\_factions.txt, descr\_names.txt, names.txt

### 3. DotS Code

‘DotS Code’ means it is a Spreadsheet formatted for being used for coding unlike our other Spreadsheets like Documentation. The link to the DotS Code – Main:

[https://docs.google.com/spreadsheet/ccc?key=0AtMLVHQaeHKxdHE2S216WURiUjNuWWxWa1JwZEZwY3c&hl=en\\_GB#gid=1](https://docs.google.com/spreadsheet/ccc?key=0AtMLVHQaeHKxdHE2S216WURiUjNuWWxWa1JwZEZwY3c&hl=en_GB#gid=1)

The permissions are set so anyone can view but only specified members can edit. If you wish to develop you need the edit permissions and you can get them from Resurrection at vlach.michael (at) gmail.com.

#### DotS Code

1	Title Reference Name	DotS Type	In-Game Name	Description	Effects Description	Title Type	Transferable?	Image	Exclude Cultures	Culture
2	reference_name	DotS_Type	name_display	description	effects_description	type	transferable	image	exclude_cultures	culture
3	first_anc	-	First Ancillary	This is the First Ancillary	Loyalty +1	politics		1 fknighto.tga	ExcludeCultures	-
4										
5										
6										
7										
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9										
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11										
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23										
24										

In the above picture as well as in actual DotS Code you may see several common features of all DotS Codes:

- **Grey Columns** are for actual coding. Whatever you put there is then used in the files.
- **Green Columns** are for your reference to help you put the right values in grey ones and are not used for actual coding.
- **Yellow Columns** are for text that will be displayed in-game. Like the names, descriptions etc.
- *;ExcludeCultures* in the above example represents the commented feature. Sometimes there are features not always used and thus are preceded by the column with their commented name. To use them you have to uncomment them = remove ‘;’.

Unless the column is self-explanatory from its code name (second row) there is also the first row with plain names and descriptions of what is supposed to go in that column. They often use comments to show you available options or other hints and useful information.

### Example of Options in Commentary:

K	L	M	N	O	P	Q	R	S
			light					
			heavy					
Function	Category	Class	missile			one of		Crusade
Function	category	class	missile			ction		Banner
levy	infantry	light	spearman			anner_fa	banner_h	banner_h
elite	cavalry	missile	handler (for animals)			in_infar	banner_h	crusade
normal	siege	missile					banner_h	
normal	siege	missile	heavy	English	banner fac		banner_h	
normal	siege	missile	heavy	English	banner fac		banner_h	
normal	siege	missile	heavy	English	banner fac		banner_h	
normal	siege	missile	heavy	English	banner fac		banner_h	
normal	siege	missile	heavy	English	banner fac		banner_h	
normal	siege	missile	heavy	English	banner fac		banner_h	

Options are also stored (usually when they are too many) in separate List:

### DotS Code - Main ☆

File Edit View Insert Format Data Tools Help			Last edit was made 16 hours ago by vlach.michael		
Unit attributes and					
A	B	C			
1 Unit attributes and AI labels	Attribute Description	Ammo Types (descr_projectiles.txt)			
2 sea_faring	This unit can board ships and cross the water. It does not affect the unit's ability to take	no			
3 hide_forest	Allows the unit to hide in forests. Whether or not you include improved determines how g	arrow			
4 hide_improved_forest		arrow_fiery			
5 hide_anywhere	The unit can hide anywhere on the battlefield, like Hashashim or Battlefield Assassins. T	composite_arrow			
6 frighten_foot	The unit frightens foot soldiers.	composite_arrow_fiery			
7 frighten_mounted	The unit frightens mounted soldiers.	cav_composite_arrow			
8 can_run_amok	The unit can "go crazy" like Elephants. It only works with mounted units.	cav_composite_arrow_fie			
9 general_unit	The unit can be used as a general's bodyguard.	bodkin_arrow			
10 general_unit_upgrade	Used in the Late General's Bodyguards. Of course, they never show up, so this seems t	bodkin_arrow_fiery			
11 cantabrian_circle	The unit has the "Circle and Shoot" special ability. Note that a unit may only have one sp	cav_bodkin_arrow			
12 no_custom	The unit cannot be selected in custom battles, like Mounted Longbowmen.	cav_bodkin_arrow_fiery			
13 command	The unit provides a morale bonus to nearby units. I am unsure whether it works properly.	catapult			
14 mercenary_unit	This has two effects	fiery_catapult			
15 is_peasant	This unit only counts as half for public order purposes. This means that if I had a unit of	trebuchet			
16 druid	The unit has the ability to chant. This raises your morale and lowers the enemy's morale	fiery_trebuchet			
17 power_charge	Seems to improve the charging ability of a unit.	tarred_rock			
18 free_upkeep_unit	The unit can be supported for free in a city, like militia.	stone			
19 can_withdraw	The unit can withdraw from battles.	bolt			
20 hardy/very_hardy	The unit has more stamina than normal.	javelin			
21 can_formed_charge	The unit can form up and charge, like Mailed Knights.	ballista			
22 knight	The unit is a knight. This means that they get bonuses from the Jousting Lists and Tour	flaming_ballista			
23 gunpowder_unit	The unit uses a gunpowder weapon.	tower_ballista			

There is one important rule you must follow under all circumstances. Before you export the data and use it in Rebuild, you must make sure each line is fully entered and that there are no gaps in the columns.

## Example of Incomplete Data

DotS Code - Misc ☆

File Edit View Insert Format Data Tools Help All changes saved

fx Faction

	A	B	C	D	E	F	G	H	I	J
	Faction	name	0-30	see comment	see comment	see comment	see comment	Primary colour		
	faction	faction_caps	ID	culture	religion	symbol	rebel_symbol	red_p	green_p	blue_p
3	aragon	ARAGON	0	southern_european	catholic	aragon	rebels	14	48	137
4	armenia	ARMENIA	1	greek	oriental	armenia	rebels	229	222	214
5	bohemia	BOHEMIA	2	central_european	catholic	bohemia	rebels	255	255	255
6	byzantium		3	greek	orthodox	byzantium	rebels	177	12	6
7	cumans		4	steppe	pagan	cumans	rebels	166	23	29
8	denmark		5	northern_european	catholic		rebels	225	215	97
9	egypt	EGYPT	6	middle_eastern			rebels	34	87	33
10	england	ENGLAND	7	northern_european			rebels	219	26	21
11	france	FRANCE	8	northern_european			rebels	15	73	172
12	georgia	GEORGIA	9	greek	oriental		rebels	255	255	255
13	hre	HRE	10	central_european	catholic		rebels	202	10	9
14	hungary	HUNGARY	11	central_european	catholic	hungary		255	255	255
15	kiev	KIEV	12	eastern_european	orthodox	kiev		29	121	194
16	lithuania	LITHUANIA	13	eastern_european	pagan	lithuania		166	44	43
17	milan	MILAN	14	southern_european	catholic	milan		255	255	255
18	moors	MOORS	15	middle_eastern	sunni	moors		218	217	213
19	norway	NORWAY	16	northern_european	catholic	norway		190	47	33
20	novgorod	NOVGOROD	17	eastern_european	orthodox	novgorod		43	138	212
21	pisa	PISA	18	southern_european	catholic	pisa		255	0	0
22	poland	POLAND	19	central_european	catholic	poland	rebels	205	26	22
23	portugal	PORTUGAL	20	southern_european	catholic	portugal	rebels	255	255	255
24	scotland	SCOTLAND	21	northern_european	catholic	scotland	rebels	219	176	82

+ descr\_sm\_factions.txt

The reason for this is that when the data are missing like this the Rebuild will trim them and will not consider whatever is below the gap. It may crash the Rebuilding or corrupt the final files. The finished data with no gaps may look like this:

If you are unsure what to put there consult the example (usually the first actual entry) or other existing entries. If the value is commented in the previous column then you should put just '-' or 'n/a' there as it won't be used. But in any case there must be at least something. Notice the '-' under Ancillary Type in the first screenshot or '-' under Banners in the example with a commentary.



## Example of Complete Data

DotS Code - Misc ☆

File Edit View Insert Format Data Tools Help All changes saved

£ % 123 10pt B Abc A A

f<sub>x</sub> Faction

	A	B	C	D	E	F	G	H	I	J
1	Faction	name	0-30	see comment	see comment	see comment	see comment	Primary colour		
2	faction	faction_caps	ID	culture	religion	symbol	rebel_symbol	red_p	green_p	blue_p
3	aragon	ARAGON	0	southern_european	catholic	aragon	rebels	14	48	137
4	armenia	ARMENIA	1	greek	oriental	armenia	rebels	229	222	214
5	bohemia	BOHEMIA	2	central_european	catholic	bohemia	rebels	255	255	255
6	byzantium	BYZANTIUM	3	greek	orthodox	byzantium	rebels	177	12	6
7	cumans	CUMANS	4	steppe	pagan	cumans	rebels	166	23	29
8	denmark	DENMARK	5	northern_european	catholic	denmark	rebels	225	215	97
9	egypt	EGYPT	6	middle_eastern	shia	egypt	rebels	34	87	33
10	england	ENGLAND	7	northern_european	catholic	england	rebels	219	26	21
11	france	FRANCE	8	northern_european	catholic	france	rebels	15	73	172
12	georgia	GEORGIA	9	greek	oriental	georgia	rebels	255	255	255
13	hre	HRE	10	central_european	catholic	hre	rebels	202	10	9
14	hungary	HUNGARY	11	central_european	catholic	hungary	rebels	255	255	255
15	kiev	KIEV	12	eastern_european	orthodox	kiev	rebels	29	121	194
16	lithuania	LITHUANIA	13	eastern_european	pagan	lithuania	rebels	166	44	43
17	milan	MILAN	14	southern_european	catholic	milan	rebels	255	255	255
18	moors	MOORS	15	middle_eastern	sunni	moors	rebels	218	217	213
19	norway	NORWAY	16	northern_european	catholic	norway	rebels	190	47	33
20	novgorod	NOVGOROD	17	eastern_european	orthodox	novgorod	rebels	43	138	212
21	pisa	PISA	18	southern_european	catholic	pisa	rebels	255	0	0
22	poland	POLAND	19	central_european	catholic	poland	rebels	205	26	22
23	portugal	PORTUGAL	20	southern_european	catholic	portugal	rebels	255	255	255
24	scotland	SCOTLAND	21	northern_european	catholic	scotland	rebels	219	176	82

+ descr\_sm\_factions.txt

Sometimes the columns may not need to be the same length and the data will still be complete. In the DotS Code breakdown will be some more examples beside names in this one:

DotS Code - Names ☆

File Edit View Insert Format Data Tools Help All changes saved

\$

%

123

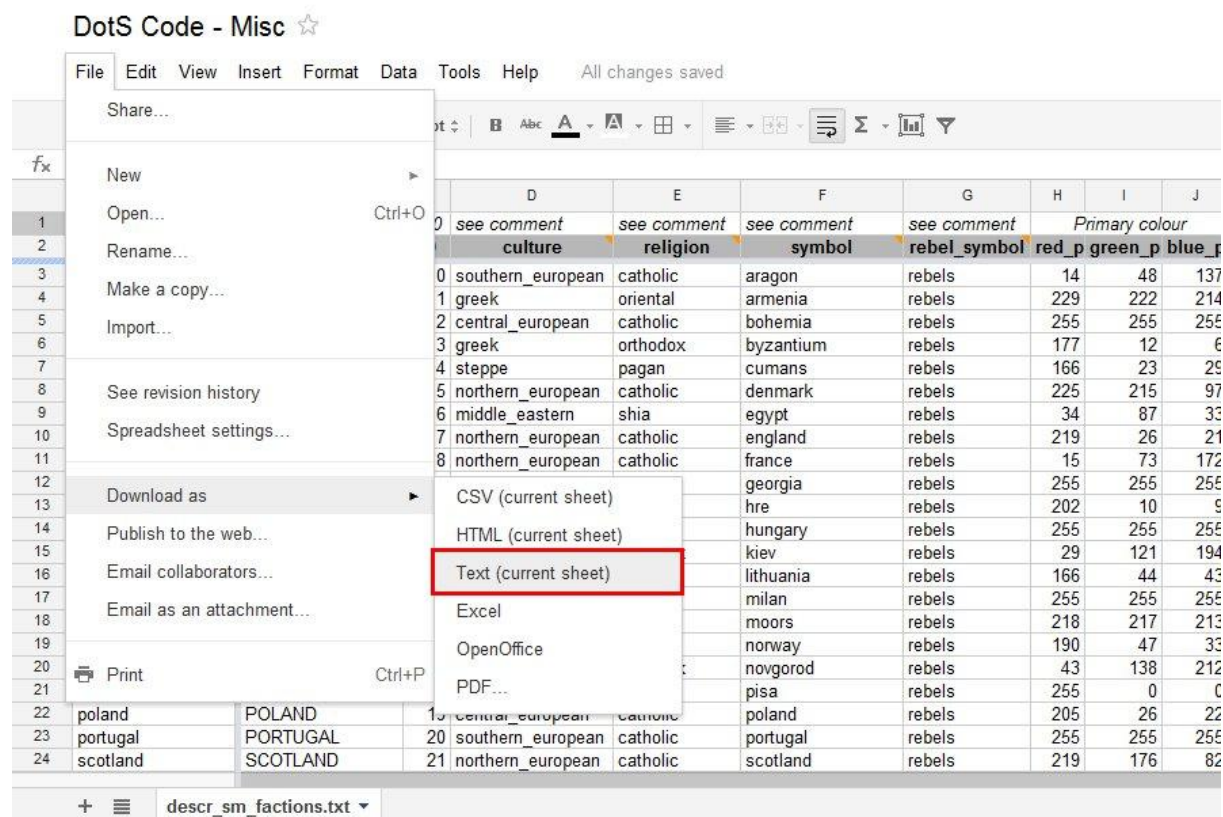
11pt

B

Abc

A

Extraction of data from the DotS Code is really simple. First you have to be in the List you wish to extract. Then you download that list as text:



Then you need to put the downloaded file as it is (no renaming!) to the /REBUILD!/G2DC/(name of DotS Code)/ folder. Example:

/REBUILD!/G2DC/Main/

Which is the folder where to put downloaded lists from DotS Code – Main. After that you simply run **Rebuild.bat** in the main DotS folder and sit back as it takes a few moments. Once it finishes you may run the game to test your changes!

## 4. Breakdown of the DotS Code

Now when you know how to operate the DotS Code is the time to see in detail what can be currently influenced and how. There are several DotS Codes:

### DotS Code

<https://docs.google.com/spreadsheet/ccc?key=0AtMLVHQaeHKxdHE2S216WURiUjNuWWxWa1JwZEWY3c>

### DotS Code – Names

<https://docs.google.com/spreadsheet/ccc?key=0AtMLVHQaeHKxdEc1ZEPMsmpCbWNDMjhsbEpIdzEtQmc>

First one is for all files included in Rebuild but Names. Second one is for Names due to their sheer amount.

### DotS Code – Names

The features currently included are:

- Male names of all factions (both reference and in-game)
- Surnames & Bynames of all factions (both reference and in-game)
- Female names of all factions save slave (both reference and in-game)

Slave (rebels) female names are used by PSF script and are not editable here. Each name comes in pair columns: first column is always reference name and the other column is always in-game name. They must be filled both but obviously there do not need be the same number of names in each pair-column as in the rest. The reference name can be ONLY a-z regular characters (upper and lower case) and ‘\_’ (underscore). Nothing else is allowed. In-game name can be pretty much anything you like.

In case you were in doubt or had any questions regarding this please contact me at the e-mail:

**vlach.michael (at) gmail.com**

## 5. Remarks for Coders

The core element of Rebuild is the DotS Replicator. Replicator uses templates of the code and replicates them over set of arguments (i.e. for all factions). The Readme is included in the REBUILD/src/ and understanding of Replicator is the key to understand the Rebuild.

Replicator itself however requires the data (elements) to be prepared for it and it is a time-consuming matter. Therefore there is G2DC (Google to Dataset Converter) which automates this process. It takes the text downloaded from the Google Spreadsheet and converts it into the dataset useable by Replicator. Along with the prepared template it then generates the actual game file.

Datasets are merged to single DATASET.yaml using TFM tool which is also used for merging some outputs (like CS).

Main operation is then carried out by Rebuild.bat in the main DotS folder. It has comments in it so you may look into it to understand what it does.

If you wished to include a file into Rebuild you first have to create a template (in /templates/ which follows the same structure as the mod) for Replicator and then prepare the List (or Lists) in the DotS Code accordingly (first row for comments, second row for dataset names, third and on the data). Dataset names need to be unique. Lastly you need to update the G2DC\_config.cfg with the path to the new data file and resulting dataset file (which goes to /datasets/). Then you need to update TFM\_config.cfg with that new dataset file so it is merged into the DATASET.yaml. Finally you update Replicator.bat similar to already existing files (you should test it separately first though) and optionally add the result to me merged in the TFM\_config.cfg again if need be.

Request and questions please direct to me at:

**vlach.michael (at) gmail.com**

## **6. Credits**

Michael Vlach (Resurrection): Idea, Google Spreadsheets Maintanace, Manual, All templates

Jana Vlachová: G2DC (Google to Dataset Converter), TFM (Text Files Merger), PSFLocator

Praneeth Satta (Azim): DotS Replicator