

Better Continents Guide

Updated edition for Valheim 1.0 and Better Continents 0.9.x

Originally written by billw2012 · maintained by Jere Kuusela

This edition: modified by Wubarrk, who now maintains Better Continents

Updated 22 September 2026 for Better Continents 0.8.0 and 0.8.1,
then 24 and 25 September 2026 for 0.9.x

Based on JereKuusela/BetterContinents-Docs, commit 327106d (October 2025)
with the Better Continents source and the Valheim 1.0 game data

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released under the same license WITHOUT ANY WARRANTY. The license text is the final appendix;
the Markdown source and build script are attached to this PDF (BetterContinents-Guide-1.0-edition-source.zip).

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About this edition

> **Updated for Valheim 1.0 / BC 0.8.0:** This page is new in this edition, and was brought up to date for BC 0.8.1 and 0.9.x. All of its text is edition text.

This is an edition of the *Better Continents Guide* (jerekuusela.github.io/BetterContinents-Docs, source repository JereKuusela/BetterContinents-Docs, commit `327106d`, October 2025), brought up to date for **Valheim 1.0** and **Better Continents 0.9.x**. The guide was originally written by **billw2012** and is maintained by **Jere Kuusela**; the repository is a fork of billw2012/BetterContinents-Docs. This edition was prepared by Wubarrk, who now maintains Better Continents. It keeps the original structure, wording and images, and corrects or extends them only where the game or the mod has changed. It is licensed under the GNU GPL, version 3; see License.

How to read this edition

- Boxes labelled **Updated for Valheim 1.0 / BC 0.8.0** are edition text. Everything outside those boxes is the original text, unchanged apart from the few corrections listed in Changes in this edition.
- Boxes labelled **New in BC 0.8.1** describe what Better Continents 0.8.1 adds or fixes. What this edition says about BC 0.8.0 also holds for 0.8.1, unless a *New in BC 0.8.1* box says otherwise.
- Boxes labelled **New in BC 0.9.0** describe what Better Continents 0.9.0 adds or fixes: world export and import, the export HUD, config that applies while the game runs, and Biome precision. What this edition says about BC 0.8.1 also holds for 0.9.0, unless a *New in BC 0.9.0* box says otherwise.
- Boxes labelled **New in BC 0.9.4** describe the 0.9.4 change this edition covers: a world created *From Config* whose **Directory** is a world export takes that export's own settings.
- The chapters Height Layers, Alt Biomes and Export and Import, this page, the License page and the appendices are new; all of their text is edition text, except the licence text itself, which is reproduced verbatim.
- The site's console animations were recorded with an older Better Continents. In this PDF each is shown as four evenly spaced frames. The commands typed in them use the old `bc param …` form, which no longer exists.
- The printed table of contents, the PDF bookmarks and the cross-references are all clickable.

Better Continents 0.9.x

- Better Continents was created by billw2012 and maintained by Jere Kuusela. **Wubarrk now maintains Better Continents.**
- **Install** it from its Hexium page, valheim.hexium.gg/mods/Wubarrk/BetterContinents, for example with the Gale mod manager.
- **Source code:** github.com/RGlabs84/BetterContinents10, where each release is tagged.
- This edition covers **Better Continents 0.9.x**. **0.8.0** brought Better Continents to Valheim 1.0. **0.8.1** added planting alt biomes with colours, per-world control over the game's random alt-biome placement, and commands to inspect it, and fixed Expand World Size worlds, in-game map edits not reaching the alt-biome grid, Deep North weather at sea, land beyond 10,500 m with the map edge drop-off off, and locations that accept several biomes. **0.9.0** adds exporting the world you are in to a set of maps and importing an export (or any folder of maps) as a New World preset or your config, an in-game export HUD, config that applies while the game runs, and working Biome precision. See Export and Import.

- Target: Valheim 1.0, the current Steam build; the mod is rebuilt and re-verified for each game update without a new guide. The package depends on `denikson-BepInExPack_Valheim-5.4.2350`.

Sources, and how far they were checked

In order of authority:

1. **The BC 0.8.0 source code and its documents** (README, the `MIGRATE-1.0.md` port record and the release changelog). Setting names, defaults, ranges and console commands in this edition were read from the code, not from older documentation.
2. **Facts established while building and play-testing test maps for 0.8.0**: the height scale and waterline, when the config is read, the world-creation preset, heat and forest map behaviour, and the 1.0 save layout.
3. **The Valheim 1.0 game code and data**, for the alt biome chapter. The list of alt biomes was extracted from the game's asset bundles.
4. **The Better Continents 0.8.1 source code, its alt-biome reference (`ALTBIOMES.md`) and its release changelog**, for planting alt biomes, the alt-biome controls and the 0.8.1 fixes. Config keys, commands, defaults, modes and file names are exactly as that reference gives them, and the colour tables are generated from the palette file that Better Continents generates from its own code.
5. **The Better Continents 0.9.0 source code and its release changelog**, for world export and import, the export HUD, config that applies while the game runs, and Biome precision. Config keys, commands, defaults and file names in Export and Import and this page were read from the code (`WorldExport.cs`, `WorldImport.cs`, `ExportHud.cs`, `LiveConfig.cs`, `Patcher.cs`), not from older documentation.

The port record is candid about what has and has not been exercised in play:

- **Verified in play:** creating a world from a full set of image maps on the Valheim 1.0 client with every location placed; the 1.0 save layout on new and upgraded worlds; upgrading a real pre-1.0 BC world; repeated saves; the minimap; booting on a real Valheim 1.0 dedicated server.
- **Not yet exercised in play:** BC's handling of Valheim's save operations (rename, copy, move and backup of a world, so keep your own backups) and the new Deep North weather and calm-sea handling. A dedicated server still cannot create a BC world by itself (see the Setup Guide).
- **BC 0.8.1:** its alt-biome code passes an offline test program that runs it against the real Valheim 1.0 game code, including real 0.8.0 worlds, whose settings must save byte for byte as 0.8.0 saves them, and planting has been shown working on a real Valheim 1.0 dedicated server.
- **BC 0.9.0:** world export, import, the export HUD, live config and Biome precision all build cleanly and pass an offline test suite, including a byte-identical comparison of Biome precision's terrain builder against vanilla's; none of it has run in a game yet. See Export and Import.

Where this edition describes behaviour that was read from source code and has not been seen in play, it says so.

What changed, in brief

- **Console:** open it with **F5**. The syntax is `bc <group> <setting> [value]` (for example `bc g sl 0.55`); there is no `param` level. `bc` is a cheat command. See Settings.
- **Creating a world:** set the preset dropdown next to the seed to **From Config**, or BC ignores your config for that world. The config file is read when the game launches and is baked into the world when it is created. See the Quick Start.
- **Heightmaps:** the waterline is heightmap value 0.30 at the default Heightmap Amount of 1, and white is 140 m above water. See Heightmap.

- **Removed or legacy:** Mountains Amount, Ocean Channels, Ridges and the Flatmap do nothing on new worlds. Procedural terrain now comes from Height Layers.
- **New settings:** World Size, Edge Size, Ashlands Gap, Deep North Gap, Skip Default Locations, Fix Water Color, Heightmap Mask, Heightmap Override All, Heightmap Alpha, Heatmap Scale, Debug Reset Command and more. See Global, Heightmap and Debug.
- **Deep North** is a real biome in Valheim 1.0, and BC 0.8.0 moves its weather and calm sea with the biome map. BC 0.8.1 also makes Deep North weather at sea follow the map.
- **Saves:** a 1.0 world is a folder, `worlds_local/<name>/`, and BC's settings live inside it in an extension-less file named `BetterContinents`.
- **Fixes:** a biome map that leaves out a biome no longer hangs world creation, and the minimap draws each biome correctly again.
- **Alt biomes:** Valheim 1.0 layers 32 biome variants onto regions of your map. The Alt Biomes chapter explains how they are assigned and what that means for map authors.
- **New in BC 0.8.1:**
  - **Planting alt biomes:** paint an alt-biome map to put chosen alt biomes on chosen regions, and steer or switch off the game's random placement. See Planting alt biomes with colours.
  - **Expand World Size:** a world smaller than 10,500 m no longer crashes (EWS issue #26), and larger worlds map alt-biome regions correctly. See Global.
  - **In-game map edits** now rebuild the alt-biome grid and the biomes of terrain chunks at once. See The cache file, which also explains why the game never keeps a stale grid across loads.
  - **Deep North weather:** on worlds with a biome map, Deep North weather at sea now follows the map. See Biome map.
- **New in BC 0.9.0:**
  - **Export and import.** `bc_export` writes the world you are in to a folder of maps that rebuild it; `bc_import` (or a New World preset the export makes for you) turns such a folder back into a world, as a preset or through the config. See Export and Import.
  - **Config that applies while the game runs.** `BetterContinents.cfg` is read again whenever it changes, not only once at launch, so an edit reaches the next world you create without restarting the game. See Export and Import.
  - **Biome precision works again**, from 0 (vanilla) to 5 (a corner every 11 m): ground texture, grass, vegetation and spawn points follow your biome map inside each 64 m terrain zone; heights are unaffected. See Biome map.
- **New in BC 0.9.4:** a world created *From Config* with **Directory** set to a world export now takes the export's `export.cfg`, so its heightmap is no longer read at the wrong Heightmap Amount and drowned. See Project.

Changes in this edition lists every substantive update.

License

> **Updated for Valheim 1.0 / BC 0.8.0:** This page is new in this edition.

The *Better Continents Guide* is licensed under the **GNU General Public License, version 3** (GPL-3.0). It was originally written by billw2012 and is maintained by Jere Kuusela, at github.com/JereKuusela/BetterContinents-Docs, a fork of github.com/billw2012/BetterContinents-Docs.

This edition is a modified version. Its modifications, all by Wubarrk:

- **2026-09-22:** updated for Valheim 1.0.15 and Better Continents 0.8.0.
- **2026-09-22:** updated for Better Continents 0.8.1: planting alt biomes with colours, the alt-biome controls and reports, the 0.8.1 fixes, the colour tables and palette, and the install and source links now that Wubarrk maintains Better Continents.
- **2026-09-24:** updated for Better Continents 0.9.0: a new chapter, Export and Import, for world export and import, the export HUD and config that applies while the game runs; and Biome precision, working again, noted in Biome map.
- **2026-09-25:** rebuilt as the Valheim 1.0 / Better Continents 0.9.x edition after the Valheim 1.0.16 update: the game is named as Valheim 1.0 and the mod as 0.9.x wherever the edition states what it covers, so later patch releases of either do not need a new edition.

The modifications are marked in place with *Updated for Valheim 1.0 / BC 0.8.0*, *New in BC 0.8.1* and *New in BC 0.9.0* boxes, and are listed in Changes in this edition. The unmodified original is the repository above at commit `327106d`.

This edition is released under the same license, the GNU General Public License, version 3. It is distributed **WITHOUT ANY WARRANTY**; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. The full text of the license is reproduced in the final appendix, GNU General Public License, version 3.

Source code of this edition. The Markdown source of this edition and the build script for this PDF are attached to this PDF as the file `BetterContinents-Guide-1.0-edition-source.zip`. Open your PDF viewer's attachments panel to save it. The attachment contains:

- the edited Markdown pages (`updated/docs/`);
- the license (`LICENSE`, also at `updated/LICENSE`);
- the build script (`build_pdf.py`), which describes how to rebuild the PDF.

The original images are not included in the attachment, because they would make it far larger (about 167 MB). They are unchanged from github.com/JereKuusela/BetterContinents-Docs at commit `327106d`, in its `docs/images` folder. This edition adds no image files of its own. The four-frame sheets shown for the animations are generated from the original GIFs by the build script.

1 Introduction

Better Continents allows you to create custom Valheim worlds using image files to control terrain, biomes, and world generation.

Generated worlds can be shared by copying world files along with the `.BetterContinents` settings file.

> **Updated for Valheim 1.0 / BC 0.8.0:** In Valheim 1.0 every world is a folder, `worlds_local/<world name>/`, and BC 0.8.0 keeps the world's settings inside that folder in a file named just `BetterContinents`, with no extension. To share a world, copy the whole world folder. The image maps are baked into that settings file, so the people you share with do not need the image files. See the Setup Guide and the FAQ.

The mod must be installed by all players using the world.

> **Updated for Valheim 1.0 / BC 0.8.0:** More precisely, when a world uses Better Continents, the server sends the world's settings to each player as they join and refuses players whose Better Continents version is different from its own. Everyone therefore needs the same BC version, for example 0.8.1 on the server and on every client.

Features

Following image files can be used to modify the world:

- **Heightmaps** - Set terrain elevation
  - **Flatmaps** - Add fine detail to terrain elevation
  - **Roughmaps** - Control biome-specific terrain roughness
- **Biome Maps** - Set biome distribution
  - **Terrain Maps** - Set terrain color, independently of biomes
  - **Heatmaps** - Set Ashlands heat distribution
- **Paint Maps** - Set custom ground textures
  - **Lava Maps** - Set Ashlands lava
  - **Moss Maps** - Set Mistlands moss
- **Forest Maps** - Set forest coverage
- **Location Maps** - Set specific location placements
- **Spawn Maps** - Modify creature spawns
- **Vegetation Maps** - Modify plant distribution

> **Updated for Valheim 1.0 / BC 0.8.0:** Flatmaps only work on worlds created with old versions of Better Continents. For new worlds, fine procedural detail comes from Height Layers instead. Biome maps can place Deep North, which is a real biome in Valheim 1.0.

Additional Features

- Change global scale to adjust continent sizes
- Adjust mountains amount and sea level
- Control forest scaling for forest/clearing area sizes
- Set explicit starting positions
- Add ridged heightmap layers for more varied geography
- Export full world maps to PNG at any resolution

Updated for Valheim 1.0 / BC 0.8.0:

- Mountains Amount no longer exists, and the separate ridge settings are gone. Ridged terrain is now a preset of the Height Layers, which stack any number of procedural noise layers with Photoshop-style blend modes and masks.
- On worlds created with 0.8.0, Continent Size only affects the height layers. See Global.
- The PNG export is the console command `bc scr [resolution]` (default 2048).
- New in the settings since this guide was written: world size and edge size, the Ashlands and Deep North ocean gaps, and skipping the default location placement. See Global.
- Valheim 1.0 also adds *alt biomes*, variants such as Dark Meadows or Bog Swamp that the game layers onto whole regions of your map. See Alt Biomes.

New in BC 0.8.1: An **alt-biome map** plants chosen alt biomes on chosen regions, like the biome map does for base biomes. See Planting alt biomes with colours.

Useful Links

Better Continents on Nexusmods

Join the Valheim Worlds discord to get help, share progress or tips and tricks.

See maps people have shared on Nexusmods.com here.

Updated for Valheim 1.0 / BC 0.8.0: More links:

- Wubarrk now maintains Better Continents. Install it from its Hexium page.
- Source code: github.com/RGlabs84/BetterContinents10, where each release is tagged.
- Companion mods recommended by the Better Continents README: Server Devcommands (BC adds tab completion for its `bc` command when it is installed), Upgrade World (for resetting zones after changing settings in game), Infinity Hammer (for building into your terrain) and TortalPortal (for portal travel across your continents).

2 Quick Start

All players will need to follow at least the client part of the setup guide.

Then...

If you just want to play a world that someone else has created

- The setup guide explains how to upload worlds to your server.
- That should be it.

If you want to improve on the vanilla world generation, but without making custom imagemaps

- Watch an example of using the non-image features to improve and customize worlds.
- Check out the settings to find out what the different config parameters do, and how to apply them using the console to a world, while in game.

> **Updated for Valheim 1.0 / BC 0.8.0:** The video shows an older Better Continents. In BC 0.8.0, new worlds without image maps are shaped by the Height Layers, and the four built-in presets (Continents, Pangaea, Swirls and Vanillaish) are ready-made examples of them. Pick one in the preset dropdown when you create the world (see below). Without a heightmap or height layers the terrain is vanilla, and Continent Size and Sea Level have no effect.

If you want to create your own world with maximum control over terrain and spawns.

- For a working example examine my example map which includes the source Photoshop file as a separate download.
- Watch an example of using the non-image features to improve and customize worlds.
- To see an example of authoring a image maps from scratch see this video in which I use my template file. Use the chapters to see different parts of the process I am using.
- To see how to take the exported image files from the previous step into the game, and create and verify the world see this other video.
- Check out the settings to find out what the different config parameters do, and how to apply them using the console to a world, while in game.

Creating a world with your own maps

> **Updated for Valheim 1.0 / BC 0.8.0:** This section is new in this edition. It is the workflow that works on Valheim 1.0.
>
> 1. **Install** Better Continents as described in the Setup Guide. The Better Continents README also recommends the companion mods Server Devcommands, Upgrade World, Infinity Hammer and TortalPortal.

2. **Put your maps in one folder** with the standard file names (`heightmap.png`, `biomemap.png`, `forestmap.png` and so on) and set the **Directory** setting to that folder. See Project. Alternatively, set each map's file path separately.

   New in BC 0.8.1: to plant alt biomes, add an alt-biome map, `altbiomemap.png`, to the same folder. See Planting alt biomes with colours.

3. **Set the config values** you need, such as Heightmap Amount, either in `BepInEx/config/BetterContinents.cfg` or in the in-game Configuration Manager (F1). Author heightmaps for the default Heightmap Amount of 1: the waterline is then heightmap value 0.30 (see Heightmap).

4. **If you edited the config file, quit and relaunch the game.** Better Continents reads its config file once, when the game launches, and bakes the values into a world when the world is created. A game that was already running keeps the values it read at launch, even though the file on disk now says otherwise.

5. **Create the world:** Start Game → New world. **Set the preset dropdown next to the seed to "From Config"**, then create the world. If the dropdown shows "Disabled" (its default) or another preset, BC ignores your config for that world. Choosing one of the built-in presets (Continents, Pangaea, Swirls, Vanillaish) creates a procedural world from that preset instead.

6. **Check that BC is active:** with the menu open (Esc), or while waiting to respawn, the bottom of the screen shows *Better Continents v0.8.1: ENABLED for this world*, with the version you run.

7. **Inspect the world:** open the console with F5, enable cheats with `devcommands`, then run `bc info` (prints the world's settings), `bc locs` (counts placed locations and warns about missing bosses), `bc bosses` (pins bosses, the start temple and the trader on the map) and `bc scr` (saves a PNG of the map).

8. **Iterate:** image maps are baked into the world when it is created, so editing a PNG never changes an existing world. For a clean result, change the maps or the config and create a new world. On a test world you can also change settings in game with the `bc` commands. Afterwards, reset the zones with Upgrade World (`zones_reset`), or zones that were already generated keep their old locations and vegetation. BC runs its *Debug Reset Command* (default `zones_reset start`) automatically after each change.

9. **Share** the finished world by copying its folder (see the FAQ).

To reuse a world's settings for new worlds, run `bc savepreset <name>` in that world. The preset is saved with a map thumbnail in `<Valheim save folder>/BetterContinents/presets/` and appears in the preset dropdown.

Tools

I would recommend using Photoshop or Krita for authoring, NOT GIMP, as GIMP does not support non-destructive editing via layer effects. Krita is open source, and has a mostly identical layer effects system to Photoshop. If you have a tablet then it can help a lot in painting smoothly and organically. You could use World Machine or Gaea to either generate a new heightmap, or modify an existing one. The erosion effects alone can help you make the terrain a lot more realistic, and be a guide on river placement. You could also generate biomemaps using it, but I won't be going into that here (it is a complex subject and I have not investigated it in any depth).

Painting colour maps

New in BC 0.8.1: This section is new in this edition.

- **Palette file and colour chart.** The release package and the source repository's `palettes/` folder contain `BetterContinents.gpl`, a palette with the ten biome map colours and the 32 default alt-biome colours, and `altbiome-palette.png`, a printable chart of the same colours, grouped by base biome. The palette is in the GIMP palette format, which Krita also reads.
  - **GIMP:** open the Palettes dialog (*Windows* > *Dockable Dialogs* > *Palettes*), right-click in the list of palettes, choose *Import Palette...* and pick the file.
  - **Krita:** use *Settings* > *Manage Resources...* > *Import Resources* and pick the file, or the import button in the Palette docker's list of palettes (*Settings* > *Dockers* > *Palette*).
- **Turn anti-aliasing off** when you paint a colour map: the biome map, the alt-biome map, and the terrain, paint, location, spawn and vegetation maps. Use the pencil tool rather than a soft brush, fill without anti-aliasing, and select without antialiasing or feathering. A blended edge pixel is a colour of its own. On a biome map it snaps to the nearest biome, which can be a third biome; on an alt-biome map it is planted by the nearest entry or not at all; on the other colour maps it matches nothing.
- **Export** at the image's own size, without resampling or colour-profile conversion, both of which shift colours too.

Template

I recommend you use my template file as a starting point. It contains premade groups, with height, water, and biome layers already setup. The intended usage of the groups\layers is like so:

- Heightmap\Heightmap: this is your base heightmap, paint it, paste something in, however you want to create it. The mask should be white for land and black for water (we can call this a "land mask"). You can generate the inital land mask using Threshold on the heightmap.
- Heightmap\Water edge mask: this is intended for creating smooth transitions between water and land, i.e. avoiding cliffs. The mask should be white for water, black for land (we can call this the "water mask"). i.e. This mask is the inverse of the land mask, and you can create it just by coping the land mask, then applying color invert.
- Biomes: the rest of the layers are the biomes themselves. Just paint white into the mask to apply that biome. You can use soft brush/smudge etc and then apply threshold to the mask directly to get crisp edges back again (which is required for it to load correctly).
- Reference: this contains reference images. Its often useful to drop in the source map you are trying to recreate, then set it as semi-transparent so you can paint over/under it. For my Middle Earth map I also dropped in a reference image that showed the route followed by Frodo/Bilbo so I could mark it with waymarkers in the spawnmap.
- Reference\Biome Key: this is just a reference for the biome colors, you don't need it really as the layers are already set up.
- Reference\Spawn Table: this is the key for how colors map to what is spawned. Where the same color maps to multiple things which one is used will be randomly selected on world creation. I did this to simplify the spawnmap creation process, and make it easier to read visually. If there are some in there that should not be grouped then please raise in the comments.[*]Spawn: this is your primary spawnmap layer. I suggest you put the main spawns in here (starting point, bosses, trader), and then add extra layers for things of which there are many. e.g. a layer for buildings, one for waymarkers, etc. I suggest you paint them in using 3 radius pencil (or bigger if you want more randomness). Ensure the spawn areas don't touch each other.

- Source: this is a place for your source images. You should put them in here to start with, and never modify them, rather copy them when you need to. Its always useful to be able to reference the unmodified source directly.

> **Updated for Valheim 1.0 / BC 0.8.0:** In the template, the "spawnmap" layer and the "Spawn Table" are what BC now calls the **location map** and its colour key; see Location map. Today's *spawn map* is a different map, which controls creature spawns (Spawn map). In BC 0.8.0 biome map pixels are matched to the nearest legend colour, so slightly-off colours still load. Crisp edges still matter, though, because a blended edge pixel can snap to a third biome (see Biome map). Location map colours must still match exactly.

3 Setup Guide

Client

Ideally use Vortex to install, as it includes all the dependencies you need for this mod already.

> **Updated for Valheim 1.0 / BC 0.8.0:** Wubarrk now maintains Better Continents. For Valheim 1.0, install it from its Hexium page with a mod manager such as Gale, which installs BepInEx along with it. The package depends on `denikson-BepInExPack_Valheim-5.4.2350`. To install by hand, put the package's `BetterContinents.dll` in `BepInEx\plugins` as described below. The source code is at github.com/RGlabs84/BetterContinents10, where each release is tagged.

Otherwise do this:

1. **Backup your world saves**. Do it. Do it now! Backup your characters aswell while you are at it.
2. **Install BepInEx Valheim**.
3. **Install Better Continents** itself: place the `BetterContinents.dll` in the `BepInEx\plugins` directory.

Optional but recommended if you want to make new worlds yourself:

- **Install the BepInEx Configuration Manager**. This gives you UI in game for changing configuration, otherwise you will need to edit text files to change settings.
- **Install the SkToolbox**. This gives improved console behaviour that makes iterating on a new world a nicer experience.

> **Updated for Valheim 1.0 / BC 0.8.0:** The Better Continents README recommends these companion mods:
>
> - Server Devcommands. When it is installed (version 1.51 or later), Better Continents registers tab completion for its `bc` console command.
> - Upgrade World. After you change world settings in game, zones that were already generated keep their old locations and vegetation until you reset them with Upgrade World's `zones_reset`. Better Continents runs its *Debug Reset Command* setting (default `zones_reset start`) automatically after each change; see Debug.
> - Infinity Hammer, for building ruins, landmarks and settlements into your terrain.
> - TortalPortal, a portal overhaul with destination previews, favourites and server synchronisation, for travel across your continents.

Dedicated Server

1. **Stop your server.**
2. **Backup your world saves** on from server. Do it. Do it now!
   How you access them depends on your provider, probably ftp. Download them locally and put them somewhere safe.
   Each world should have a `.fwl` and `.db` file, and the default world is called `Dedicated`.
   On Linux servers the world files should be found at `.config/unity3d/IronGate/Valheim/worlds`, on Windows servers at `%AppData%\..\LocalLow\IronGate\Valheim\worlds` (same as for Windows clients).

3. **Enable mods on your server** if they are not enabled already.
   How to do this is highly dependent on your server provider: for instance some have a toggle on the server management page to "enable mods", which results in BepInEx (or a mod that comes with BepInEx, e.g. Valheim+) being installed and enabled for you. Alternatively you might need to set this up yourself, in which case you should follow BepInEx server installation guide.
4. **Upload this mod** to the `BepInEx\plugins` directory on your server. Again this depends on your server provider, but probably you will do it by FTP. The `BetterContinents.dll` file should now reside in the `BepInEx\plugins` directory.
5. **Upload the world** you want to use that was created with Better Continents, perhaps one from here, or one you created your self. Its possible to create a new world ON the server, but it is easier to do it locally as you can modify the configuration in game and test it first.

   > NOTE: Some providers don't allow any files other than `.fwl` and `.db` to be uploaded. This will not work, you must also upload the `.BetterContinents` file. Complain to your server provider, or switch to another one!

6. **Point your server at the world** you uploaded. How to do it depends on your server provider, there should be some mechanism to specify the World Name, or modify the command line of the server.
7. **Start your server again** and join it.

Updated for Valheim 1.0 / BC 0.8.0:

- **World files in 1.0.** A world is now a folder, `worlds_local/<world name>/`, inside the same `…/IronGate/Valheim/` save folder (`worlds` is the older and cloud location). The folder holds the game's `_main.N.fwl2`, `.db2`, `.chunks` and `.ok` files plus the chunk files, and BC 0.8.0 puts the world's settings in the same folder in a file called `BetterContinents`, with **no extension**. Back up, and upload, the **whole folder**. If your provider filters uploads by file extension, check that the extension-less `BetterContinents` file arrived. Without it the world loads as a plain vanilla world.
- **Creating the world on the server does not work with BC 0.8.0.** Better Continents only bakes its settings into a new world when the world is created from the client's main menu, so a world created by a dedicated server comes out vanilla. Create the world locally, test it, then upload the folder.
- **Older worlds.** A pre-1.0 Better Continents world (`<name>.fwl`, `<name>.db` and `<name>.BetterContinents` side by side) still loads. On its first save, Valheim converts it to the folder layout and BC 0.8.0 moves the settings into the folder. It keeps the old file, renamed `<name>.BetterContinents.pre10`, because that file holds the only other copy of the world's maps.
- **Save operations.** Valheim's own rename, copy, move and backup routines only carry the game's file types, so BC 0.8.0 patches them to carry the settings file too. That part has not yet been exercised in play, so keep your own backups of BC worlds.

IMPORTANT: You need to follow the Client setup guide as well!

Both client **and** server need the same version of Better Continents installed when running a Better Continents world.
However: you can join servers that don't have Better Continents installed without it interfering (it will just be disabled).
You can also join servers that have Better Continents installed, without having it installed yourself, *as long as the server runs a world that doesn't require it* (i.e. one created without it).

> **Updated for Valheim 1.0 / BC 0.8.0:** On a Better Continents world, the server sends the world's settings (including the baked image maps) to each client as it connects. The client caches them in `<save folder>/BetterContinents/cache/`, so players never need the image files. A client with a different BC version, or without BC, is refused with a connection error. The versions must match exactly.

4 Frequently Asked Questions

Where do I put downloaded worlds?

> These go in the `worlds` directory, found at `%AppData%\..\LocalLow\IronGate\Valheim`. Just copy this path into your explorer bar and hit enter, and it will take you there.

> **Updated for Valheim 1.0 / BC 0.8.0:** In Valheim 1.0 local worlds live in `worlds_local` in the same folder (`%AppData%\..\LocalLow\IronGate\Valheim\worlds_local` on Windows, `~/.config/unity3d/IronGate/Valheim/worlds_local` on Linux), and each world is its own folder. Copy the whole world folder, including the extension-less `BetterContinents` file inside it. A downloaded pre-1.0 world (loose `.fwl`, `.db` and `.BetterContinents` files) is converted to the folder layout the first time it is saved.

Where is my client log?

> It is called `Player.log`, and is found at `%AppData%\..\LocalLow\IronGate\Valheim`. Just copy this path into your explorer bar and hit enter, and it will take you there.

> **Updated for Valheim 1.0 / BC 0.8.0:** Better Continents prefixes its log lines with `[BetterContinents]`. When a world is created or loaded it logs the world's full settings, the same output as the `bc info` console command.

What are the image requirements for map files?

> All the image maps must be:
>
> - Square (width the same as height)
> - A power of two. This means the valid sizes are 1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096 **only**.
> - One of these formats: Png, Jpeg, Bmp, Gif, Tga, Png is **strongly** preferred as it gives the best combination of size and color representation for this system.
>
> It is **not** necessary for all images to be the same format or size, you can mix and match.

> **Updated for Valheim 1.0 / BC 0.8.0:** BC 0.8.0's image loader (ImageSharp) only checks that an image is square. The power-of-two rule is no longer enforced, although power-of-two sizes remain a sensible choice. Every map covers the same 21 km × 21 km square, from −10,500 m to +10,500 m on each axis, whatever the World Size setting. A 2048 px map is therefore about 10.25 m per pixel and a 4096 px map about 5.1 m per pixel. The top of the image is north, and the centre of the image is the centre of the world.

My world is all ocean, or much lower than I painted it. Why?

Updated for Valheim 1.0 / BC 0.8.0: This question is new in this edition. Check the height scale first. At the default Heightmap Amount of 1, the waterline is heightmap value **0.30** (grey 77 of 255), not 0.15, and white is 140 m above water. Using 0.15 as the waterline drowns every lowland biome. Second, the config file is read when the game launches. If you changed Heightmap Amount in the file while the game was running, the world was built with the old value. Quit, relaunch, and create a new world. See Heightmap.

New in BC 0.9.4: A heightmap from a world export is stored for Heightmap Amount 2 (waterline 0.15), and the export's `export.cfg` sets that Amount. Before 0.9.4, a world made *From Config* with only **Directory** set to an export folder ignored `export.cfg`, read the heightmap at the config's Heightmap Amount (1 by default) and came out almost all ocean. Since 0.9.4 such a world takes the folder's `export.cfg` itself. A `heightmap.png` copied to a folder without its `export.cfg` still needs Heightmap Amount 2 and Sea Level Adjustment 0.5 in your config. See Project.

I edited my map images, but the world did not change.

Updated for Valheim 1.0 / BC 0.8.0: This question is new in this edition. The image maps are baked into the world when it is created, so editing a PNG never changes an existing world. Create a new world. On a test world you can also pull the new image in with `bc reload` and reset the generated zones with Upgrade World. Locations were placed when the world was created, though, so a new world is the reliable way.

New in BC 0.8.1: `bc reload` and the other in-game map edits now also rebuild the game's biome grid, which decides terrain biomes and alt biomes. With 0.8.0 the grid kept following the old map until the world was loaded again. See The cache file.

The menu says Better Continents is DISABLED for my world.

Updated for Valheim 1.0 / BC 0.8.0: This question is new in this edition. Either the preset dropdown next to the seed was not set to *From Config* (or to a preset) when the world was created, or the world folder has lost its `BetterContinents` settings file. The dropdown defaults to *Disabled*.

5 Image maps

Better Continents allows you to control world generation using various image files. Each type of map serves a specific purpose in customizing your Valheim world.

The following image maps are available:

- **Heightmaps** - Control terrain elevation
- **Biome Maps** - Control biome distribution
- **Paint Maps** - Set custom ground textures
- **Forest Maps** - Control forest coverage
- **Location Maps** - Set specific location placements
- **Spawn Maps** - Modify creature spawns
- **Vegetation Maps** - Modify plant distribution

Updated for Valheim 1.0 / BC 0.8.0: Things that hold for every map in BC 0.8.0 (read from the source code):

- **Coverage and orientation.** Every map covers the same square, from −10,500 m to +10,500 m on each axis (21 km × 21 km); the World Size and Edge Size settings do not change this. The top of the image is north, the left edge is west, and the image centre is the world centre.
- **Baked at creation.** When a world is created, BC stores every map, together with the effect of its colour legend, in the world's `BetterContinents` settings file. Editing an image or a legend afterwards does not change that world.
- **Legend files.** The colour-keyed maps read a text legend named after the image, next to it: `biomemap.txt`, `terrainmap.txt`, `paintmap.txt`, `locationmap.txt`, `spawnmap.txt`, `vegetationmap.txt`. If the file is missing, BC writes one containing the defaults (empty for the paint, spawn and vegetation maps).
- **Where the settings live.** Map file settings are in the config sections `02 BetterContinents.Heightmap` (heightmap, roughmap), `03 BetterContinents.Biomemap` (biome map, terrain map), `04 BetterContinents.Forest` (forest map) and `06 BetterContinents.Maps` (location, spawn, vegetation, paint, lava, moss and heat maps). The Project Directory setting, if set, replaces all of these paths.
- **Reloading in game.** `bc reload <map>` re-reads an image from disk on the current world. The map names are `hm`, `rm`, `fm`, `bm`, `terrain`, `lm`, `fom`, `paint`, `lava`, `moss`, `vegetation`, `heat`, `spawn` and `all`. Only the maps the world actually uses are offered.

New in BC 0.8.1: There is one more map, the **alt-biome map** `altbiomemap.png`, which plants Valheim 1.0's alt biomes on the regions you paint. It has its own legend, `altbiomemap.txt`, and its settings are in the config section `08 BetterContinents.AltBiomes` (`Altbiomemap File` sets the file). In game, `bc reload ab` re-reads it, and `bc reload all` includes it. It is described in the Alt Biomes chapter, under Planting alt biomes with colours.

Also new: after an in-game map edit or `bc reload`, Better Continents 0.8.1 rebuilds the world's biome grid as well, so terrain biomes and alt biomes follow the new map at once. See The cache file.

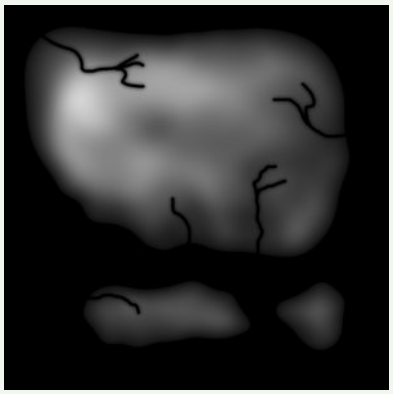
5.1 Heightmap

The heightmap allows direct control of the base height values for the whole map. It can blend with, or replace the base part of the vanilla proceduraly generation.
A heightmap of 4096 x 4096 results in each pixel representing about 4 x 4 meters in game (the map size is 20 km x 20 km).
The cloud layer in game has been determined to be at about 400 m above sealevel, meaning that an 8 bit heightmap (256 gray levels) can represent height differences of about 1.5 m. A 16 bit heightmap can represent height differences of less than 1 cm.

Use 16 bit grayscale PNG for the heightmap.

> **Updated for Valheim 1.0 / BC 0.8.0:** In BC 0.8.0 the image covers the full 21 km × 21 km square (from −10,500 m to +10,500 m on each axis), so a 4096 px heightmap is about 5.1 m per pixel and a 2048 px one about 10.25 m per pixel. At the default Heightmap Amount of 1, the whole 0–1 range of the image spans 200 m of height (see below), so one 8-bit grey level is about 0.8 m. 16-bit is still the better choice.

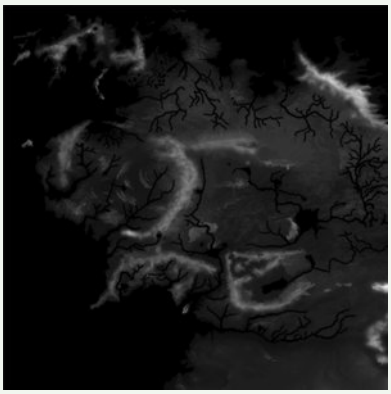
Examples



example-hm.png



logo-heightmap.png

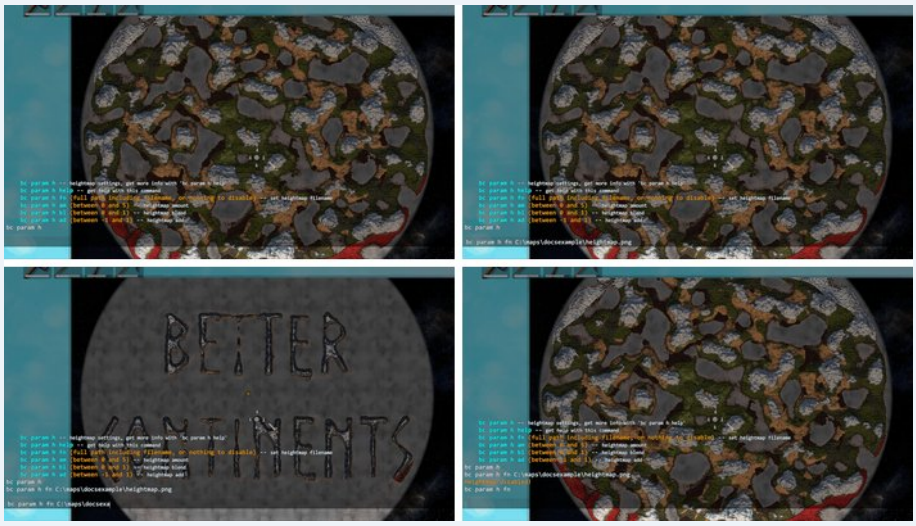


me-heightmap.png

Console

Command: `bc h fn`

> **Updated for Valheim 1.0 / BC 0.8.0:** Was `bc param h fn`; the `param` word no longer exists. The value can be a full path, a directory, or a file name that is looked up in the Project Directory. The animation was recorded with the old syntax.



Frames 1, 15, 30 and 44 of 44 from the original animation `bc-param-h-fn.gif` *(15 s), left to right, top to bottom.*

Where to get Heightmaps

- Craft them from scratch in some package. People have used Photoshop, Krita, GIMP, Blender to good affect.
- Google
- This very nice Google Maps style page that will export heightmaps directly for any area on Earth.
- World Machine: This is highly advanced heightmap generating software that can do things like physical modelling of erosion. It can also generate assist in generating biome maps automatically as well.
- Gaea: Similar to World Machine, might be quicker to get started with.

Creation Hints

- Ensure the ocean areas of the heightmap are pure black, not grey
- Apply automatic contrast/levels to ensure the values are using the full range available
- I recommend smoothing (blurring) the image to avoid any sharp changes in altitude
- Getting sealevel looking correct might take some tweaking, of either the image itself or the sealevel setting
- To determine sealevel with your current config settings you can create a smooth gradient on the heightmap (gradient paint bucket tool in Photoshop), apply a flatish biome to it (e.g. plains), and then view it in game to determine what gray value corresponds to sealevel. In my testing with sealevel set to 25% the corresponding gray value is about #0d0d0d.
- When trying to test your map in game start with all default, then set these settings:
  - Heightmap File - paste your file name in here, or use the Project Directory with an appropriate heightmap file in it.
  - Ocean Channels un-ticked
  - Rivers un-ticked
  - Ridges Amount 0%

Updated for Valheim 1.0 / BC 0.8.0: Corrections to these hints for new worlds:

- You no longer need to find the sea level by experiment: it can be calculated (next section). The #0d0d0d at 25% observation comes from an older height formula. With BC 0.8.0 a Sea Level of 0.25 puts even pure black 40 m above the water.
- Pure black is 60 m below the water at the default Heightmap Amount, which is fine for open ocean. Grade coasts and shallows up to the waterline value (0.30) rather than dropping straight to black.
- The test settings are no longer needed. Ocean Channels and Ridges do nothing on new worlds, and with Heightmap Override All on (the default) vanilla's rivers never appear. **Rivers and lakes must be carved into the heightmap itself.**
- Vanilla places many locations (bosses, traders, dungeons) by distance from the world centre, so a map keeps its locations when Meadows are central and the harsher biomes further out.
- Unless Mountains Allowed At Center is on, BC caps the terrain within about 600 m of the world centre at 46 m above the water, blending back to your heightmap by 1,000 m.
- Sanity-check a new map before playing it. Measure, per biome, how much of it lies above the waterline. If the lowland biomes (Meadows, Swamp, Plains) come out near 0 % above water, or only a metre or two above, the height scale is wrong and the world will be drowned, however good the map looks.

Height scale and the waterline

Updated for Valheim 1.0 / BC 0.8.0: This section is new in this edition. With a heightmap loaded and Heightmap Override All on (the default), BC 0.8.0 computes each point's height like this (Blend 1, Add 0 and Mask 0, the defaults):

```
finalHeight        = heightmapValue × HeightmapAmount − 0.15 + SeaLevelAdjustment
SeaLevelAdjustment = Lerp(1, −1, SeaLevel)   (0 at the default Sea Level, 0.5)
world height (m)   = finalHeight × 200       (water at 30 m = finalHeight 0.15)
```

So at the default Sea Level:

- the **shoreline** is heightmap value **0.30 / HeightmapAmount**;
- **metres above water = (value × HeightmapAmount − 0.30) × 200**;
- at the default Amount of 1.0, the waterline is value 0.30 (about grey 77 of 255 in an 8-bit image), white is **140 m above water** (the ceiling) and black is 60 m below.

Heightmap value	8-bit grey	Height at Amount 1.0
0.00	0	60 m below water
0.15	38	30 m below water
0.30	77	waterline
0.40	102	20 m above water
0.50	128	40 m above water
0.75	191	90 m above water
1.00	255	140 m above water

Using 0.15 as the waterline is a real mistake that has been made: it puts every lowland biome up to 30 m under water, and the map renders as bare peaks in an empty ocean.

Sea Level moves the waterline to heightmap value (2 × SeaLevel − 0.7) / HeightmapAmount. Each 0.05 of Sea Level is 20 m of water. At Amount 1, a Sea Level of 0.35 or less drains the sea completely, and

0.85 or more puts everything under water.

Author for the default Amount of 1.0. Heightmap Amount, like the rest of the config, is read when the game launches and baked into the world when it is created. A map drawn for a different Amount is only right if the config held that value before the game started. When the ordering slips, the map is read against the wrong Amount; a map drawn for 1.6 and read at 1.0 came out entirely under water.

Heightmap Amount SETTING

Multiplier of the height value from the heightmap file (more than 1 leads to higher max height than vanilla, good results are not guaranteed).

Default `1`
Range `0` to `5`

Updated for Valheim 1.0 / BC 0.8.0: Heightmap Amount sets the altitude ceiling: (Amount − 0.30) × 200 m above water, so 140 m at the default. It is read from the config at game launch and baked in at world creation (see above).

Console
Command: `bc h am`

Updated for Valheim 1.0 / BC 0.8.0: Was `bc param h am`. The animation was recorded with the old syntax.



Frames 1, 25, 49 and 73 of 73 from the original animation `bc-param-h-am.gif` *(22 s), left to right, top to bottom.*

Heightmap Blend SETTING

How strongly to blend the heightmap file into the final result.

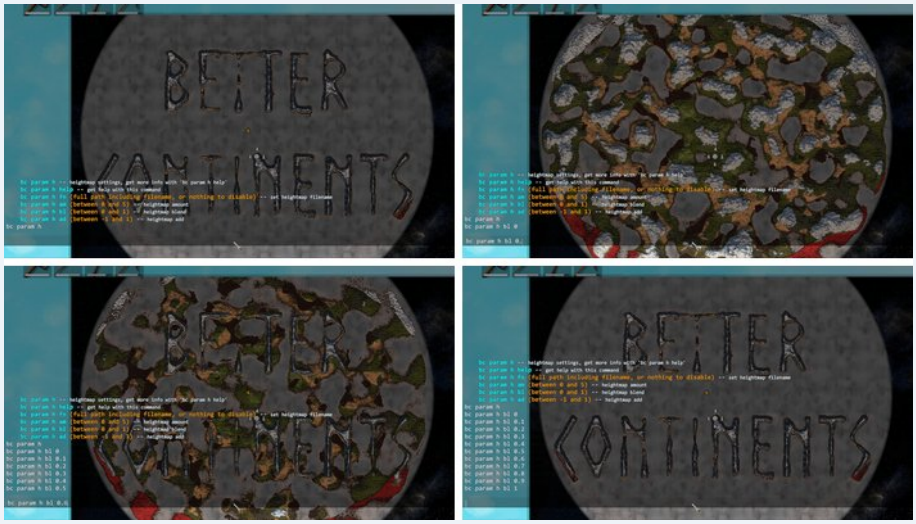
Default `1`
Range `0` to `1`

Updated for Valheim 1.0 / BC 0.8.0: In the height function used by new worlds, the heightmap is blended against zero, which is flat ground 60 m below the water, so Blend works as a multiplier on the heightmap. To mix the heightmap with procedural terrain, use Height Layers, which are applied on top of it.

Console

Command: `bc h bl`

Updated for Valheim 1.0 / BC 0.8.0: Was `bc param h bl`. The animation was recorded with the old syntax.



Frames 1, 27, 53 and 78 of 78 from the original animation `bc-param-h-bl.gif` *(27 s), left to right, top to bottom.*

Heightmap Add SETTING

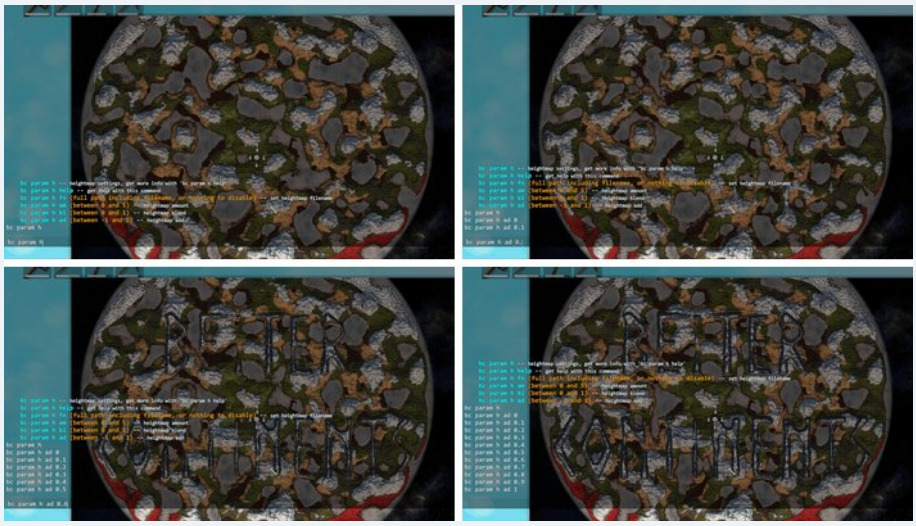
How strongly to add the heightmap file to the final result (usually you want to blend it instead).

Default `0`
Range `-1` to `1`

Console

Command: `bc h ad`

Updated for Valheim 1.0 / BC 0.8.0: Was `bc param h ad`. The animation was recorded with the old syntax.



Frames 1, 30, 60 and 89 of 89 from the original animation `bc-param-h-ad.gif` *(31 s), left to right, top to bottom.*

Heightmap Mask SETTING

Updated for Valheim 1.0 / BC 0.8.0: This setting is new in this edition's coverage. Config description: *How strongly to apply the heightmap as a mask on normal height generation (i.e. it limits maximum height to the height of the mask).* Default `0`, range `0` to `1`. Console: `bc h ma`.

Heightmap Override All SETTING

Updated for Valheim 1.0 / BC 0.8.0: This setting is new in this edition's coverage. Config description: *All other aspects of the height calculation will be disabled, so the world will perfectly conform to your heightmap.* Default `true`. Console: `bc h ov`.

When it is on, each point's height is taken straight from BC's height function: your heightmap plus any Height Layers. Vanilla's biome-specific terrain shapes, vanilla's rivers and the roughmap are all bypassed. When it is off, vanilla's biome terrain (swamp flattening, mountain peaks, rivers and so on) is built on top of your heightmap, and the roughmap can blend between the two.

Heightmap Alpha SETTING

Updated for Valheim 1.0 / BC 0.8.0: This setting is new in this edition's coverage. Config description: *Enables alpha channel for the heightmap file to blend vanilla generation with the heightmap.* Default `false`. Console: `bc h alpha`. In the BC 0.8.0 source the alpha channel is loaded but not yet used when heights are sampled, so this setting currently has no visible effect.

5.2 Flatmap

> **Updated for Valheim 1.0 / BC 0.8.0:** The flatmap is a **legacy feature**. BC 0.8.0 has no config setting and no console command for it, and the Project Directory does not load a `flatmap.png`. Only worlds whose settings are stored in an old Better Continents save format (formats 5 and 6) still use a stored flatmap, and on those worlds `bc reload fm` still reloads it. On new worlds, small-scale procedural detail comes from Height Layers. The original description below is kept for reference.

The flatmap controls the smaller detail bumpiness that is applied ontop of the large scale height changes in the base height calculation. A black value in the flatmap will result in the vanilla small height variations being unmodified. A white value will result in them being removed entirely. As the roughmap and flatmap have similar but inverted behavior (they both serve to control small scale variations in height), you can use one of them to drive the other with the "Use Rough For Flat" flag in the config. This will use the roughmap (inverted, so white is black and vice versa) as the flat map. The means if you paint all black in roughmap it will remove all extra procedural details (excluding the Ocean Channels and Rivers, which you can also toggle in the config).

Use Roughmap For Flatmap SETTING

Use the flatmap as the rough map, but inverted (black rough map results in totally flat terrain).

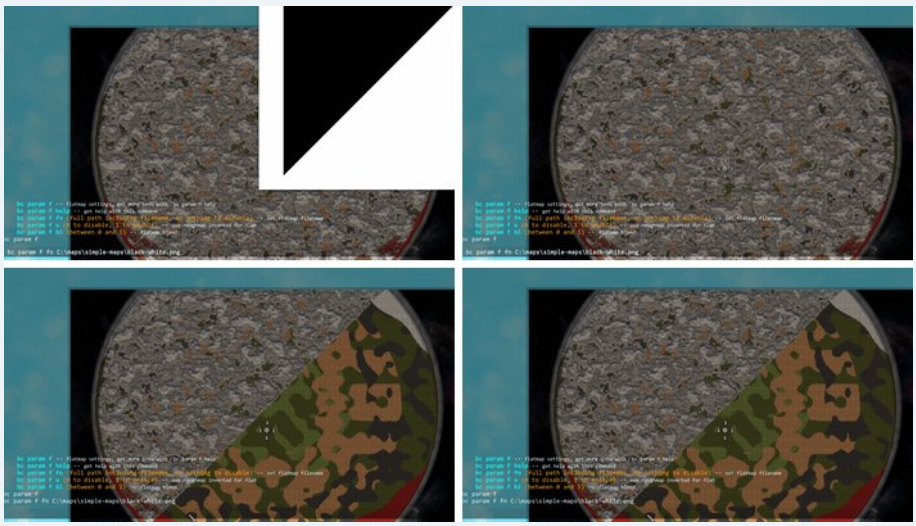
> Default true

Use 8 bit grayscale PNG of medium resolution for the flatmap.

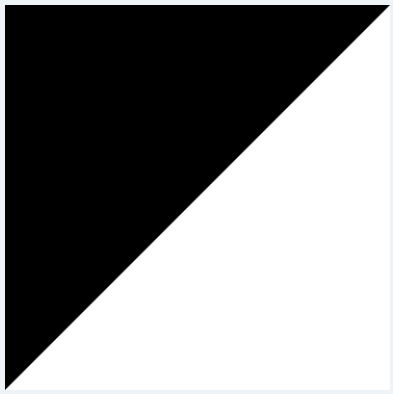
Console

Command: `bc param f fn`

> **Updated for Valheim 1.0 / BC 0.8.0:** This command no longer exists in BC 0.8.0 (there is no `f` group). The animation shows an older version.



Frames 1, 7, 13 and 18 of 18 from the original animation `bc-param-f-fn.gif` *(6 s), left to right, top to bottom.*



Flatmap Blend SETTING

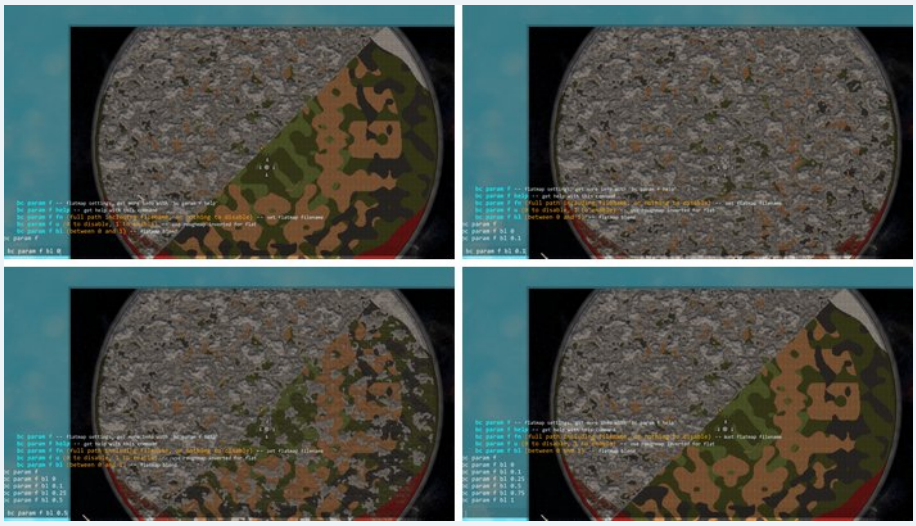
How strongly to apply the flatmap file (also applies when using Use Roughmap For Flatmap).

> Default `1`
> Range `0` to `1`

Console

Command: `bc param f bl`

> **Updated for Valheim 1.0 / BC 0.8.0:** This command no longer exists in BC 0.8.0. The animation shows an older version.



Frames 1, 26, 51 and 75 of 75 from the original animation `bc-param-f-bl.gif` *(28 s), left to right, top to bottom.*

5.3 Roughmap

The roughmap controls the strength of the vanilla biome specific heightmap variations. In vanilla each biome has its own additional height variation that is applied, for instance the swamp height is always set to about sea-level, mountains have extra large scale variation applied to generate peaks. A white value in the roughmap will result in the vanilla biome variations being unmodified. A black value will result in them being removed entirely.

Use 8 bit grayscale PNG of medium resolution for the roughmap.

Updated for Valheim 1.0 / BC 0.8.0: When a heightmap is loaded with Heightmap Override All on (the default), the terrain comes straight from the heightmap and the roughmap is ignored. Turn Override All off to use a roughmap with a heightmap. The roughmap settings (`Roughmap File`, `Roughmap Blend`) are in the config section `02 BetterContinents.Heightmap`.

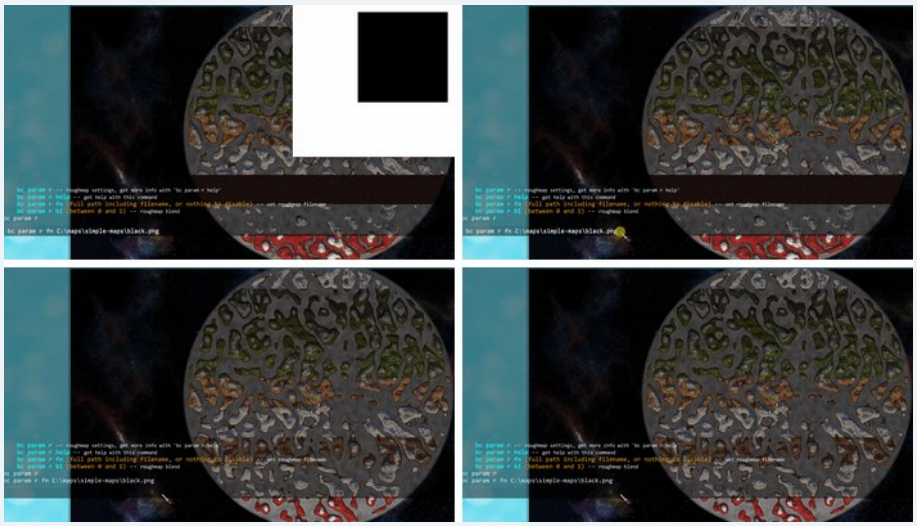
Console

Command: `bc r fn`

Updated for Valheim 1.0 / BC 0.8.0: Was `bc param r fn`. The animations were recorded with the old syntax.



Frames 1, 8, 15 and 22 of 22 from the original animation `bc-param-r-fn.gif` *(7 s), left to right, top to bottom.*



Frames 1, 8, 16 and 23 of 23 from the original animation `bc-param-r-fn-2.gif` *(7 s), left to right, top to bottom.*

Roughmap Blend SETTING

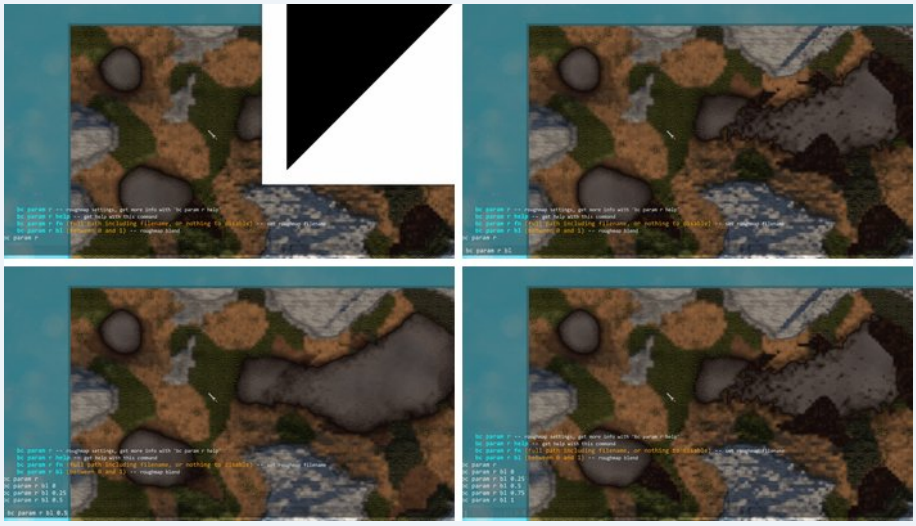
How strongly to apply the roughmap file.

> Default `1`
> Range `0` to `1`

Console

Command: `bc r bl`

> **Updated for Valheim 1.0 / BC 0.8.0:** Was `bc param r bl`. The animation was recorded with the old syntax.



Frames 1, 21, 41 and 61 of 61 from the original animation `bc-param-r-bl.gif` *(22 s), left to right, top to bottom.*

5.4 Biome map

The biome map can be used to override the default biome generation.

Each biome is represented by a specific color. The biome Default can be used for the default biome generation.

Swatch	Biome	Hex	R, G, B
	None	`000000`	0, 0, 0
	Meadows	`00FF00`	0, 255, 0
	BlackForest	`007F00`	0, 127, 0
	Swamp	`7F7F00`	127, 127, 0
	Mountain	`FFFFFF`	255, 255, 255
	Plains	`FFFF00`	255, 255, 0
	Mistlands	`7F7F7F`	127, 127, 127
	AshLands	`FF0000`	255, 0, 0
	DeepNorth	`00FFFF`	0, 255, 255
	Ocean	`0000FF`	0, 0, 255

New in BC 0.8.1: This table is generated from Better Continents' palette file (`palettes/palette.json` in its source repository), in the palette's order and with the names the legend file uses: None is the *Default* above. The original guide's table showed the same colours, with the names Mountains, Ash Lands and Default; its colour chips are shown in Other images.

The colors can be changed by editing the biomemap.txt file. This is required when using custom biomes from Expand World Data mod.

Use 32 bit RGBA PNG for the biomemap. For biomes, the file size doesn't matter because the actual biome values are stored instead of the image data.

Updated for Valheim 1.0 / BC 0.8.0:

- **The legend file** is named after the image and sits next to it (`biomemap.txt` for `biomemap.png`). If it is missing, BC writes it with the defaults. Each line is `Name: RRGGBB` (or `Name: r,g,b`):

  ```
  None: 000000
  Meadows: 00FF00
  BlackForest: 007F00
  Swamp: 7F7F00
  Mountain: FFFFFF
  Plains: FFFF00
  Mistlands: 7F7F7F
  AshLands: FF0000
  DeepNorth: 00FFFF
  Ocean: 0000FF
  ```

  None is the *Default* of the text above: those pixels use the default (vanilla) biome generation.
- **Only the ten names above are accepted in BC 0.8.0.** Valheim 1.0 converts biomes to indices with a lookup that throws an error on any value it does not know. BC therefore rejects the whole legend and falls back to the defaults if it contains any other name, and custom biomes from Expand World Data can no longer be mapped this way.
- **Pixels snap to the nearest legend colour**, so slightly-off colours still load. Keep edges hard (no anti-aliasing or soft brushes), because a blended edge pixel can snap to a third biome. A soft coastline between Meadows, Plains or Swamp and Ocean comes out as a thin fringe of **Mistlands**. For example, the half-way blend of Meadows and Ocean (0,128,128) is nearest to Mistlands.
- **Deep North is a real biome in Valheim 1.0.** Vanilla still decides where the Deep North's weather, snow painting and calm sea are by a fixed geographic test. With a biome map, BC 0.8.0 makes those follow the Deep North pixels of your map instead. This is new in 0.8.0 and has not yet been checked in play.
- **Leaving a biome out is fine.** On Valheim 1.0 a biome map that omitted a biome (for example no Mistlands) made world creation hang forever on the progress bar. BC 0.8.0 fixes that. Locations that need the missing biome are skipped and reported in the log (BC logs *"The biome map has no Mistlands..."*, and Valheim reports *"Failed to place all ..."*).
- **Layout matters.** Vanilla places many locations by distance from the world centre, so a sensible map keeps Meadows central and the harsh biomes outward. See also Alt Biomes: the size and position of each biome region decides which alt biomes Valheim 1.0 can put there.
- The biome key image from the original repository (not shown on the site):



New in BC 0.8.1:

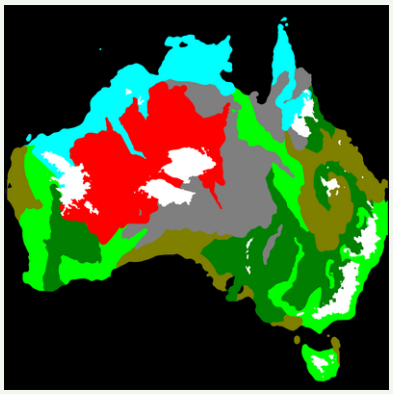
- **Deep North weather at sea.** The game decides whether the weather should be Deep North weather by testing the camera's height where it should test the north–south position. On maps with Deep North across the middle, Deep North weather therefore showed up at sea in the wrong places. On Better Continents worlds with a biome map, Deep North weather at sea now follows the map, as Ashlands weather already does.
- **Alt biomes.** A separate alt-biome map, `altbiomemap.png`, plants Valheim 1.0's alt biomes on the regions you paint, without changing anything about the biome map. See Planting alt biomes with colours.
- **Palette file.** `BetterContinents.gpl`, a palette for GIMP and Krita, holds the biome map colours in the table above and the default alt-biome colours. It comes in the release package and in the source repository's `palettes/` folder. See Painting colour maps.
- **In-game edits.** When you change the biome map in game (for example with `bc b fn` or `bc reload bm`), Better Continents 0.8.1 also rebuilds the game's biome grid, so terrain biomes and alt biomes follow the new map at once. See The cache file.
- **Locations that accept several biomes.** For such a location, Valheim 1.0 picks which of its biomes to search, and the pick goes wrong in three ways: it returns Black Forest for Plains, tests the Meadows flag for Ocean, and never picks the last matching biome. On a Better Continents world, when the pick is not one of the location's biomes or is absent from the map, one of its biomes that the map has is searched instead. A usable pick is kept, so complete maps place locations as before.

Biomemap Creation Hints

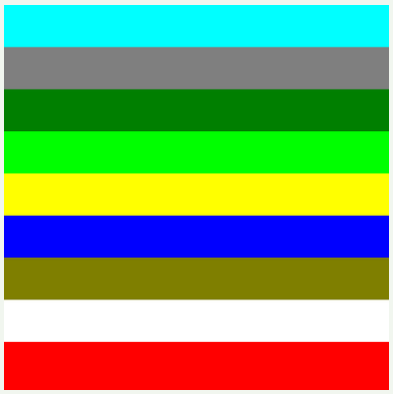
- Setup the biome colors as swatches, or a stored palette, for easy access.
- Place your heightmap on a background layer, then set your biome layers to 50% transparent.
- Use a separate layer for each biome, then you can reorder the layers if needed, and even apply layer edge effects.
- For each biome layer, fill it with the biome color entirely, then add a layer mask and paint into that, NOT the color part. This allows direct use of threshold onto the layer mask without having to convert it back and forth between color and black/white.
- Generate masks for the biomes based on height by using "Threshold". You can create a general land mask, and a mountains mask quite easily using this method. It can work for a basic Swamps mask as well.
- Improve the look of your Swamp mask by applying the water mask to it to exclude all water areas from the biome. This looks cleaner on the map and should reduce the number of enemy spawning in the water.

- If you have created a biome mask and want to grow or shrink its edges you can bake it into black and white, blur it, and then use Threshold again.
- Improve the look of the biome edges by using the smudge tool to roughen them up. After this you can reapply threshold to make the edges crisp again.

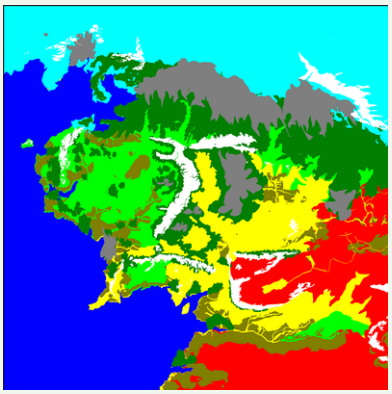
Examples



`aus-biomemap.png`



`biomemap.png`



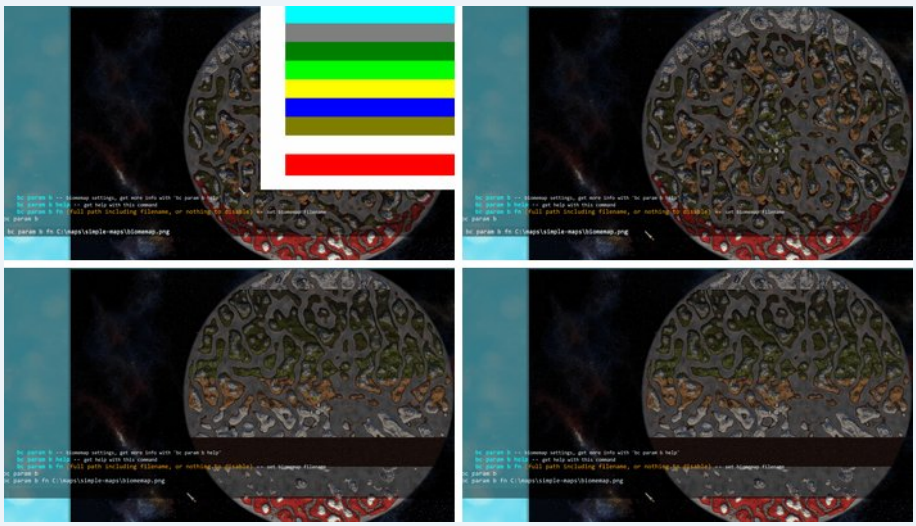
`middle-earth-biomemap.png`

Console

Command: `bc b fn`

Updated for Valheim 1.0 / BC 0.8.0: Was `bc param b fn`. The animation was recorded with the old syntax. The `b` group also has `bc b p`, *Biome precision*, which is disabled in BC 0.8.0: the config calls it "Not working!" and BC logs a note to that effect.

New in BC 0.9.0: Biome precision works again. From 0 (vanilla: a 64 m terrain zone reads the biome map only at its four corners) to 5 (a corner every 11 m), it sets how closely ground texture, grass, vegetation and spawn points follow your biome map inside the zone; it never changes terrain height, and it never changes how locations or alt biomes are placed (those keep vanilla's four-corner, 12 m rules). Checked offline against the mod's own test suite, including a byte-identical comparison with vanilla's terrain builder at every precision level; not yet seen rendered in a running game. See Export and Import.



Frames 1, 9, 17 and 24 of 24 from the original animation `bc-param-b-fn.gif` *(7 s), left to right, top to bottom.*

5.5 Terrain map

By default, the ground texture is determined by the biome. The terrain map can be used to override this.

Color	Value	Texture
	`#0000FF`	Ocean
	`#00FF00`	Meadows
	`#007F00`	Black Forest
	`#7F7F00`	Swamp
	`#FFFFFF`	Mountains
	`#FFFF00`	Plains
	`#7F7F7F`	Mistlands
	`#00FFFF`	Deep North
	`#FF0000`	Ash Lands
	`#000000`	Default

Use 32 bit RGBA PNG for the terrainmap.

> **Updated for Valheim 1.0 / BC 0.8.0:** The setting is `Terrainmap file` in the config section `03 BetterContinents.Biomemap`. The Project Directory file name is `terrainmap.png`, and the console command is `bc terrain fn`. The legend file `terrainmap.txt` is written next to the image with the defaults above if it is missing. Unlike the biome map, terrain map colours are matched exactly: a colour that is not in the legend is used as a raw ground colour.

Color mapping

Previously shown colors are based on the default terrainmap.txt file.

Color mapping is used because alpha channel is difficult to use with some image editors.

Here are the actual internal colors used by the game. For example if you want to try different values.

Biome	Color
Default	`#808080FF`
Ocean	`#00000000`
Meadows	`#00000000`
Black Forest	`#0000FF00`
Swamp	`#FF000000`
Mountains	`#00FF0000`
Plains	`#000000FF`
Mistlands	`#0000FFFF`
Deep North	`#00FF0000`
Ash Lands	`#FF0000FF`

5.6 Heatmap

The Ashlands biome uses heat feature to make the water deal damage to ships and players.

By default, the boiling area matches the default generation of Ashlands biome. If you want to have boiling water somewhere else then you need to use the heat map.

Heat has intensity that affects how much damage is dealt to ships and how fast the player starts burning.

By default, the intensity increases when moving deeper into the Ashlands. Most effects cap after 300 meters when the intensity reaches 1. When partially standing on water, the effect caps after 3000 meters when the intensity reaches 10.

The heat map uses 10x scaling, so the max value of white color means 10 intensity.

Use 16 bit grayscale PNG for the heatmap.

> **Updated for Valheim 1.0 / BC 0.8.0:**
>
> - **Heat decides what counts as Ashlands.** With a heat map loaded, BC answers the game's "is this Ashlands?" question with *heat* > *0*, literally. The heat map must therefore be **exactly 0** (pure black) everywhere on land that is not Ashlands. Any stray non-zero pixel silently turns that ground into Ashlands.
> - **A sea ramp is fine.** Heat that extends into the water around the Ashlands, rising towards the coast, is what burns boats on the approach, just as in vanilla. Bound the heat geometrically around your Ashlands rather than tracing the biome edge.
> - **No heat map?** If the world has a biome map but no heat map (or a Heatmap Scale of 0), BC takes "is this Ashlands?" from the biome map's Ashlands pixels instead. This is the fallback added in 0.7.28 so that lava still works.
> - The file setting is `Heatmap File` in the config section `06 BetterContinents.Maps`. The Project Directory file name is `heatmap.png`, and the console command is `bc heat fn`.

Heat scale SETTING

Heat map scaling. Default is 10.

> **Updated for Valheim 1.0 / BC 0.8.0:** The config name is `Heatmap Scale` (range `0` to `100`) and the console command is `bc heat sc`. The config description adds: *Multiplies the heatmap color value. Most heat effects cap at 1 value.* A scale of 0 disables the heat map.

5.7 Paint map

The paint color is applied on top of the ground texture. This is used for player placed modifications like paving and cultivation.

However Mistlands and Ashlands also use this system for the alternative moss ground and lava.

To make editing easier, the default moss and lava generation is used when the color is fully opaque.

Different paints can be mixed but the ratios are not intuitive.

Paint	Color
Grass	`#000000FF`
Dirt	`#FF0000FF`

Paint	Color
Cultivated	#00FF00FF
Paved	#0000FFFF
Moss	Depends on the alpha value
Lava	When alpha > 99
Patches	#00BF00FF
Grass Dark	#996600FF
Paved Moss	#000080FF
Paved Dirt	#FF0080FF
Paved Dark	#00FF80FF
...	Experiment

Note: Players can't modify the alpha channel, so using it on other biomes affects their terrain editing.

Moss and lava

Alpha channel can be difficult to use with some image editors. There are two ways around this:

- Use the mossmap.png and lavamap.png files for these features.
  - This is recommended if you don't have use for other paints.
- Use the paintmap.txt file to map opaque colors to the alpha channel.

Following rules apply:

1. If the moss map exists and the biome is Mistlands, alpha value comes from the moss map.
2. If the lava map exists and the biome is Ashlands, alpha value comes from the lava map.
3. If the paint color is fully opaque, alpha value comes from the default generation.
4. Otherwise alpha value comes from the paint color.

Use 32 bit RGBA PNG for the paintmap.

> **Updated for Valheim 1.0 / BC 0.8.0:** The setting is `Paintmap File` in the config section `06 BetterContinents.Maps`. The Project Directory file name is `paintmap.png`, and the console command is `bc paint fn`. The legend file `paintmap.txt` next to the image starts empty. Each line maps an image colour to a paint value as `PAINT: IMAGE`: the internal paint colour first, then the colour used in your image, each written as hex or as `r,g,b[,a]`. For example, `0000FFFF: 808080` would turn mid-grey pixels in the image into paved ground. Image colours not listed are used as they are.

5.8 Lava map

The lava map is an alternative way for defining where lava can appear. The other way is using alpha channel in the paint map.

The lava map only affects the Ashlands biome. This means you don't need to worry about affecting other biomes.

Lava appears when the greyness is above 60% of the maximum value (99 of FF).

Use 16 bit grayscale PNG for the lavamap.

Updated for Valheim 1.0 / BC 0.8.0: The setting is `Lavamap File` in the config section `06 BetterContinents.Maps`. The Project Directory file name is `lavamap.png`, and the console command is `bc lava fn`.

5.9 Moss map

The moss map is an alternative way for defining where moss can appear. The other way is using alpha channel in the paint map.

The moss map only affects the Mistlands biome. This means you don't need to worry about affecting other biomes.

Use 16 bit grayscale PNG for the mossmap.

Updated for Valheim 1.0 / BC 0.8.0: The setting is `Mossmap File` in the config section `06 BetterContinents.Maps`. The Project Directory file name is `mossmap.png` (0.7.31 fixed the old misspelt default `mossmmap.png`), and the console command is `bc moss fn`.

5.10 Forest

Forest Scale SETTING

Scales forested/cleared area size.

> Default `0.5`
> Range `0` to `1`

Updated for Valheim 1.0 / BC 0.8.0: In the BC 0.8.0 config, Forest Scale is declared with **default** `1` and **range** `0` **to** `10`. The console command `bc fo sc` still shows default 0.5 and range 0 to 1. BC turns the value into a scale through a curve on which **0.5 is vanilla size**. Worked out from the source:

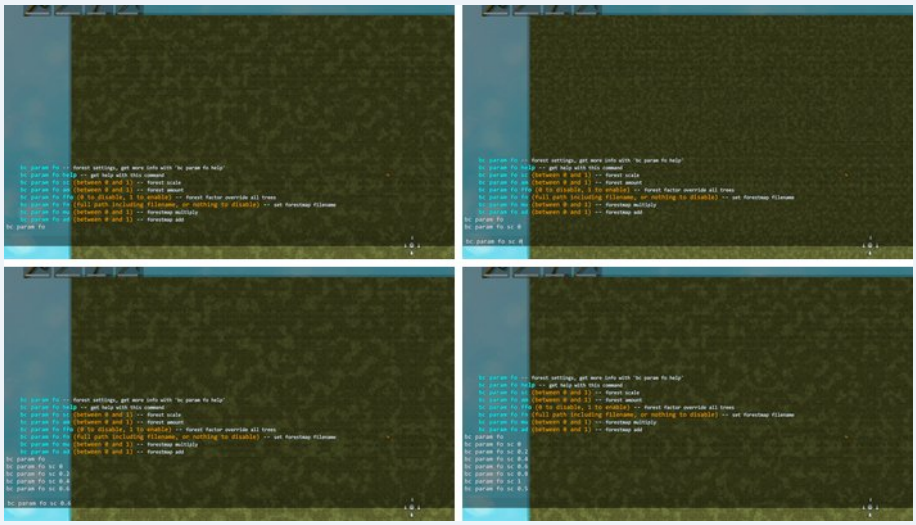
Forest Scale	Forest and clearing size
0	1/3 of vanilla
0.25	about 0.64 × vanilla
0.5	vanilla
0.75	about 1.8 × vanilla
1 (config default)	5 × vanilla
above about 1.15	broken: the scale reaches zero, then goes negative

So a world created from an untouched config gets forest and clearing patches five times larger than vanilla. Set 0.5 for vanilla-sized patches, and stay within 0 to 1.

Console

Command: `bc fo sc`

Updated for Valheim 1.0 / BC 0.8.0: Was `bc param fo sc`. The animation was recorded with the old syntax.



Frames 1, 31, 61 and 91 of 91 from the original animation `bc-param-fo-sc.gif` *(33 s), left to right, top to bottom.*

Forest Amount SETTING

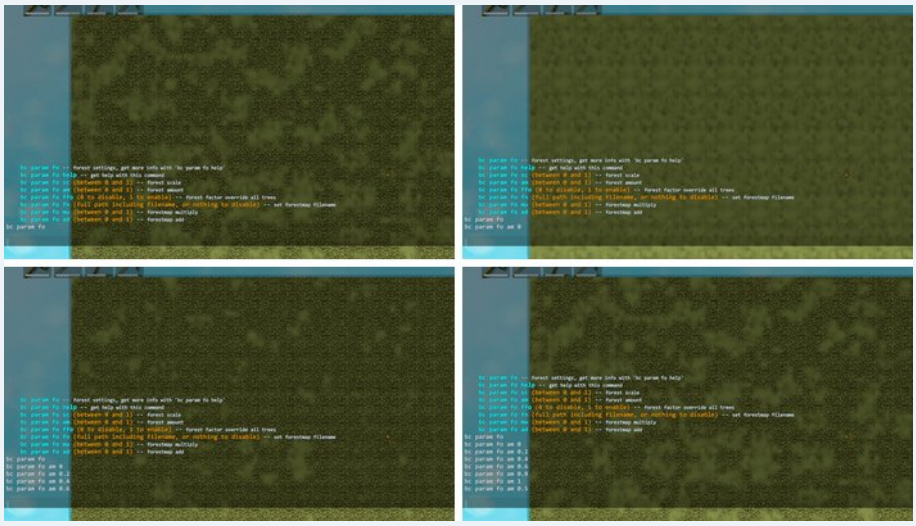
Adjusts how much forest there is, relative to clearings.

Default `0.5`
Range `0` to `1`

Updated for Valheim 1.0 / BC 0.8.0: 0.5 is neutral (no change from the forest factor). Higher values give more forest.

Console
Command: `bc fo am`

Updated for Valheim 1.0 / BC 0.8.0: Was `bc param fo am`. The animation was recorded with the old syntax.



Frames 1, 35, 69 and 103 of 103 from the original animation `bc-param-fo-am.gif` *(34 s), left to right, top to bottom.*

Forest Factor Overrides All Trees SETTING

Trees in all biomes will be affected by forest factor (both procedural and from forestmap).

> Default false

Console

Command: `bc fo ffo`

> **Updated for Valheim 1.0 / BC 0.8.0:** Was `bc param fo ffo`. The value is `true` or `false`, and the world must be reloaded for a change to take effect. The animation was recorded with the old syntax.



Frames 1, 15, 30 and 44 of 44 from the original animation `bc-param-fo-ffo.gif` *(14 s), left to right, top to bottom.*

The forestmap controls the spawning of trees. By default this will only affect the Meadows and Plains trees (as in vanilla). You can also set "Forest Factor Overrides All Trees" to have forest factor (whether from vanilla procedural generation or the forestmap) control tree spawning in *all* biomes. i.e. You can have clearings in the Mistlands, the Swamps and even the Dark Forest! The minimap is also updated to show forest coverage on all biomes when this flag is active.

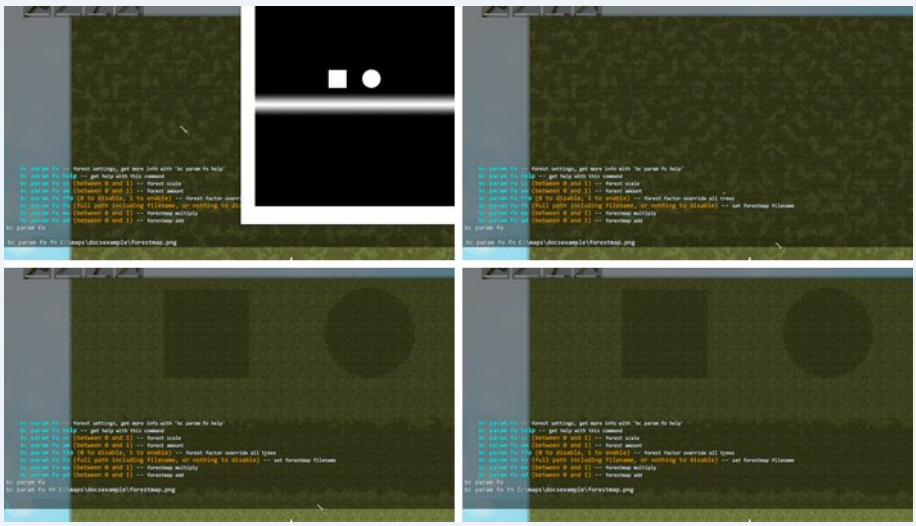
> **Updated for Valheim 1.0 / BC 0.8.0:**
>
> - **Minimap:** the last sentence no longer applies. In Valheim 1.0 the minimap's forest overlay is drawn by the game itself, and only for Meadows, Plains and Black Forest. Swamp, Mountain and Deep North get no overlay, and Mistlands uses its own mist shading. The game reads Better Continents' forest values for this, so the overlay follows your trees honestly. Older BC versions forced a forest overlay onto other biomes, which on Valheim 1.0 made Swamp, Mountain, Plains and Mistlands all draw as Black Forest. BC 0.8.0 removed that.
> - **Which trees:** in the 0.8.0 source, this flag makes the forest factor control these vegetation prefabs: FirTree, FirTree_small, FirTree_small_dead, FirTree_oldLog, Pinetree_01, SwampTree1, SwampTree2, SwampTree2_log, SwampTree2_darkland, HugeRoot1, and the spider webs vertical_web, horizontal_web and tunnel_web.

Use 8 bit grayscale PNG of medium resolution for the forestmap. Image uses black as "no forest" zone and white as "forest" zone.

Console

Command: `bc fo fn`

> **Updated for Valheim 1.0 / BC 0.8.0:** Was `bc param fo fn`. The animation was recorded with the old syntax.



Frames 1, 13, 25 and 37 of 37 from the original animation `bc-param-fo-fn.gif` *(12 s), left to right, top to bottom.*

Forestmap Multiply SETTING

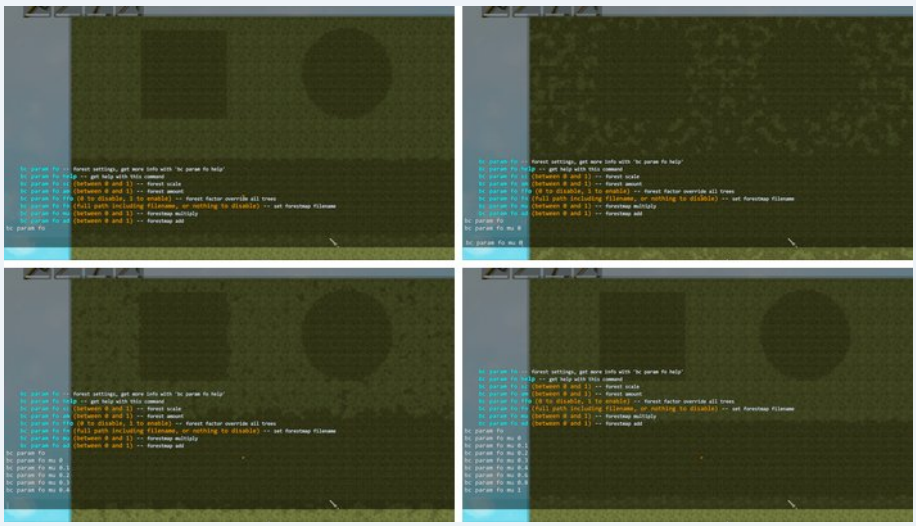
How strongly to scale the vanilla forest factor by the forestmap.

Default `1`
Range `0` to `1`

Console

Command: `bc fo mu`

> **Updated for Valheim 1.0 / BC 0.8.0:** Was `bc param fo mu`. The animation was recorded with the old syntax.



Frames 1, 29, 58 and 86 of 86 from the original animation `bc-param-fo-mu.gif` *(34 s), left to right, top to bottom.*

Forestmap Add SETTING

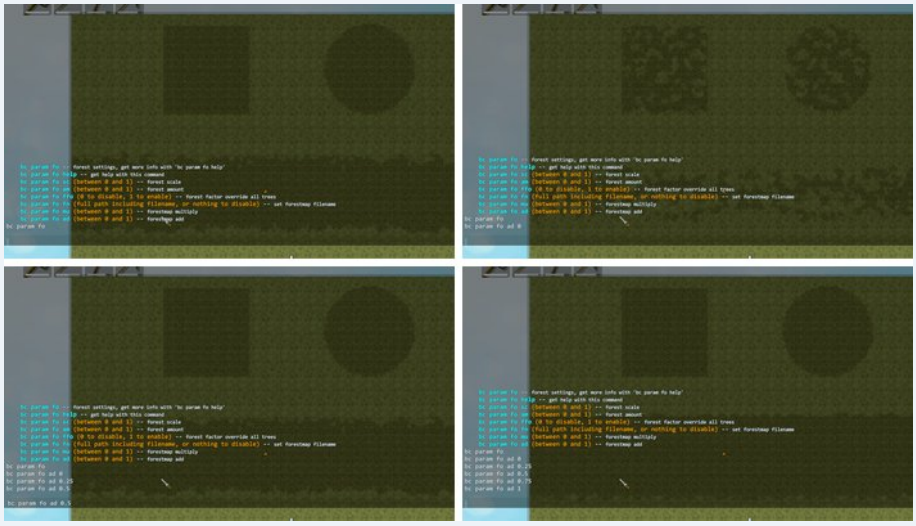
How strongly to add the forestmap directly to the vanilla forest factor.

> Default `1`
> Range `0` to `1`

Console

Command: `bc fo add`

> **Updated for Valheim 1.0 / BC 0.8.0:** Was `bc param fo ad`. The subcommand is now `add`. The animation was recorded with the old syntax.



Frames 1, 23, 46 and 68 of 68 from the original animation `bc-param-fo-ad.gif` *(26 s), left to right, top to bottom.*

Recommended forest map settings

> **Updated for Valheim 1.0 / BC 0.8.0:** This section is new in this edition. BC maps vanilla's forest factor to a 0-to-1 "forestness" (0 bare, 1 dense), combines it with the forest map value `fmap` as `Lerp(normalised, normalised × fmap, Multiply) + fmap × Add`, and maps the result back:
>
> - With the defaults (Multiply 1, Add 1) this is `fmap × (normalised + 1)`, which saturates quickly and gives little control.
> - With **Forestmap Multiply = 0** and **Forestmap Add = 1** it is `normalised + fmap`. A **higher forest map value then means more trees**, predictably.
> - Leave **Forest Amount at 0.5**, which is neutral.
>
> Don't hold densities down to protect the minimap: the overlay only exists in Meadows, Plains and Black Forest (see above).

5.11 Location map

The location map allows you to control where locations are placed when the world is created. The Location color chart below shows the various types of location that are supported, including all the start location, bosses, trader, and dungeons.

Updated for Valheim 1.0 / BC 0.8.0: The site never displayed the chart this sentence refers to. It is `images/spawnmap-ref.png` in the original repository, from the days when the location map was called the spawn map, and it is shown here:

Group	Quantity	Name	Color
Spawn	1	StartTemple	#FF0000
Boss	3	Eikthymir	#FF9900
Boss	4	GDKing	#00FF00
Boss	4	GoblinKing	#FFFF00
Boss	5	Bonemass	#00FFFF
Boss	3	Dragonqueen	#4A86E8
Trader	10	Vendor_BlackForest	#0000FF
Abandonedcabin	33	AbandonedLogCabin02	#E6B8AF
Abandonedcabin	33	AbandonedLogCabin03	#E6B8AF
Abandonedcabin	50	AbandonedLogCabin04	#E6B8AF
Cave	250	TrollCave02	#C9DAF8
Crypt	200	Crypt2	#FFF2CC
Crypt	200	Crypt3	#FFF2CC
Crypt	200	Crypt4	#FFF2CC
Crypt	400	SunkenCrypt4	#45818E
Dolmen	50	Dolmen03	#FFE599
Dolmen	100	Dolmen01	#FFE599
Dolmen	100	Dolmen02	#FFE599
Goblintower	50	Ruin3	#DD7E6B
Goblintower	50	StoneTower1	#CC4125
Goblintower	50	StoneTower3	#CC4125
Grave	100	MountainGrave01	#6AA84F
Grave	200	Grave1	#7F6060
GuckTree	700	InfestedTree01	#B6D7A8
House	20	WoodHouse1	#6D9EEB
House	20	WoodHouse10	#6D9EEB
House	20	WoodHouse11	#6D9EEB
House	20	WoodHouse12	#6D9EEB
House	20	WoodHouse13	#6D9EEB
House	20	WoodHouse2	#6D9EEB
House	20	WoodHouse3	#6D9EEB
House	20	WoodHouse4	#6D9EEB
House	20	WoodHouse5	#6D9EEB
House	20	WoodHouse6	#6D9EEB
House	20	WoodHouse7	#6D9EEB
House	20	WoodHouse8	#6D9EEB
House	20	WoodHouse9	#6D9EEB
House	200	StoneHouse3	#76A5AF
House	200	StoneHouse4	#76A5AF
Meteorite	500	Meteorite	#93C47D
Mountainruin	50	StoneTowerRuins04	#A61C00
Mountainruin	50	StoneTowerRuins05	#A61C00
Ruin	50	SwampRuin1	#134F5C
Ruin	50	SwampRuin2	#134F5C
Ruin	200	Ruin1	#274E13
Ruin	200	Ruin2	#274E13
Runestones	50	DrakeLorestone	#85200C
Runestones	50	Runestone_Boars	#5B0F00
Runestones	50	Runestone_Draugr	#4FCCCC
Runestones	50	Runestone_Greydwarfs	#EA9999
Runestones	100	Runestone_Meadows	#E06666
Runestones	100	Runestone_Mountains	#CC0000
Runestones	100	Runestone_Plains	#990000
Runestones	100	Runestone_Swamps	#660000
Ship	100	ShipSetting01	#D0E0E3
Shipwreck	25	ShipWreck01	#FCE5CD
Shipwreck	25	ShipWreck02	#FCE5CD
Shipwreck	25	ShipWreck03	#FCE5CD
Shipwreck	25	ShipWreck04	#FCE5CD
Spawn	200	GoblinCamp2	#BF9000
Spawner	200	DrakeNest01	#FFD966
Spawner	200	FireHole	#F1C232
Spawner	300	Greydwarf_camp1	#D9EAD3
StoneCircle	25	StoneCircle	#A2C4C9
Stonehenge	5	StoneHenge1	#F9CB9C
Stonehenge	5	StoneHenge2	#F9CB9C
Stonehenge	5	StoneHenge3	#F9CB9C
Stonehenge	5	StoneHenge4	#F9CB9C
Stonehenge	20	StoneHenge5	#F9CB9C
Stonehenge	20	StoneHenge6	#F9CB9C
Stonetowerruins	80	StoneTowerRuins03	#F6B26B
Stonetowerruins	80	StoneTowerRuins07	#F6B26B
Stonetowerruins	80	StoneTowerRuins08	#F6B26B
Stonetowerruins	80	StoneTowerRuins09	#F6B26B
Stonetowerruins	80	StoneTowerRuins10	#F6B26B
Swamphut	25	SwampHut5	#E69138
Swamphut	50	SwampHut1	#E69138
Swamphut	50	SwampHut2	#E69138
Swamphut	50	SwampHut3	#E69138
Swamphut	50	SwampHut4	#E69138
Waymarker	50	Waymarker01	#A4C2F4
Waymarker	50	Waymarker02	#A4C2F4
Well	25	MountainWell1	#38761D
Well	25	SwampWell1	#0C343D
woodvillage	10	WoodFarm1	#B45F06
woodvillage	15	WoodVillage1	#783F04

What BC actually uses is the legend file `locationmap.txt` next to your image, which BC writes with its defaults if it is missing. Its colours agree with the chart except for two entries, so take those colours from the file, not the chart:

Location	Chart	Default `locationmap.txt`
Greydwarf_camp1	`#D9EAD3`	`217,228,211` = `#D9E4D3`
Waymarker01, Waymarker02	`#A4C2F4`	`164,195,244` = `#A4C3F4`

The default file also lists two locations that the chart lacks: `Mistlands_DvergrBossEntrance1: 153,0,255` (the Queen's entrance) and `Hildir_camp: 255,105,180`. Each line is `LocationName: r,g,b` (hex also works), and the name is the game's location prefab name. You can add any other location, including Valheim 1.0 locations the defaults predate. Several names may share a colour, in which case each painted area picks one of them at random.

Image requirements

- 24 bit RGB png
- At least 329x329 to match in-game zones
  - Larger image can be used for more detail
- Use black background
- Colors must match exactly the locationmap.txt file

Behaviour

- All positions will be filled, even if that exceeds what the game usually places.
- The actual position is chosen from all adjacent pixels of same color.
- If you want multiple same locations next to each other, use a different color or make sure there is at least one pixel of black between them.
- After using the map, the game will continue with the default placement system. This can be disabled with the "Skip default locations" setting.

> **Updated for Valheim 1.0 / BC 0.8.0:**
>
> - The setting is `Skip Default Locations` (config section `01 BetterContinents.Global`, console `bc g skipdefaultlocations`). It is saved with the world. When it is on, every default location except the start temple is skipped, including the extra locations that Valheim 1.0's alt biomes would add.
> - The start temple is placed by the location map if you paint one, or at the Start Position if that is overridden.
> - **Checking the result:** `bc locs` prints how many of each location were placed and warns if any of `StartTemple`, `Eikthyrnir`, `GDKing`, `Bonemass`, `Dragonqueen`, `GoblinKing`, `Vendor_BlackForest` or `Mistlands_DvergrBossEntrance1` is missing. `bc bosses` pins those on the map. `bc show <prefix>` pins every location whose name starts with the prefix, and `bc hide <prefix>` removes those pins again. Careful: `bc hide` with no prefix removes *every* pin on the map, your own included.
> - **Legacy name:** before 0.7.30 this map was the "spawnmap". If `Spawnmap File` is set while `Locationmap File` is empty, BC assumes an old config: at launch it moves the path to `Locationmap File` (replacing "spawnmap" with "locationmap" in it), and when the world is created it renames a `spawnmap.png` beside it to `locationmap.png`. See Spawn map for what this means for today's creature spawn maps.

Creation Hints

- Bring the spawn color table into your paint tool as a separate layer, or tabbed image, for easy access. Use the eye dropper on it to quickly select a spawn color.
- Draw spawn areas using a pencil tool NOT brush, as you want a hard edge and no color variation. Use a size that can be seen easily without having to zoom in. Slight randomization of the spawn location won't matter (see the example images).
- Place your heightmap/biomemap background layers so you can easily see where you are placing spawns.
- Use a separate layer for each spawn type (bosses, markers, buildings etc.), then you can easily change the type of all of them in one go.

> **Console**
> Command: `bc l fn`
>
> > **Updated for Valheim 1.0 / BC 0.8.0:** Was `bc param s fn`; the location map group is now `l`.

5.12 Spawn map

The spawn map allows you to control where creatures spawn in the world. You can enable or disable spawns for different areas using specific colors.

Image requirements

- 24 bit RGB PNG
- 329x329 resolution to match in-game zones
  - Larger images won't give any benefit
- Use black background for default spawns
- Use white color to disable all spawns
- Other colors must match exactly the spawnmap.txt file

Behavior

- Spawns are enabled by setting the biome requirement to any biome.
  - Other requirements are currently not affected.
- Spawns are disabled by setting the biome requirement to no biome.
- `none`: disables all spawns
- `name`: enables a specific creature
- `-name`: disables a specific creature

> **Updated for Valheim 1.0 / BC 0.8.0:** As implemented in the 0.8.0 source (the same code as 0.7.31), the entries in a `spawnmap.txt` line mean:
>
> - `none`: disables every spawn in the area, except the creatures named on the same line.
> - `+name`: **enables** the creature everywhere in the area, whatever its biome (the biome requirement is set to "any biome"; its other requirements still apply).
> - `-name`: disables the creature.
> - `name` with no prefix: only exempts the creature from `none` on the same line, so it keeps its normal spawning rules. On its own, without `none`, a bare name changes nothing.
> - `*` wildcards are supported: `Troll*`, `*_Elite`, `*camp*`, `Goblin*Shaman`. Names are matched case-insensitively against prefab names.
>
> Each line is `RRGGBB: entries` (or `r,g,b: entries`). Do not put `#` in front of the colour: a line starting with `#` is a comment. Pure white is always "none". Colours must match exactly, and an unknown colour is logged once and treated like black. The map is sampled at each zone's spawn system, so it works per 64 m zone. Event (raid) spawns are not affected.

Examples

```
# Red color is set to enable Wolves and Skeletons to spawn in that area
FF0000: Wolf, Skeleton

# Blue color is set to disable all spawns but enable Wolves and Skeletons
0000FF: none, Wolf, Skeleton
# Green color is set to disable Wolves and Skeletons
```

```
00FF00: -Wolf, -Skeleton
```

Updated for Valheim 1.0 / BC 0.8.0: Following the rules above, the first two examples do not do what their comments say in BC 0.8.0. Corrected versions:

```
# Red: also let Wolves and Skeletons spawn here, whatever the biome
FF0000: +Wolf, +Skeleton

# Blue: disable all spawns except Wolves and Skeletons, which keep their normal rules
0000FF: none, Wolf, Skeleton

# Blue variant: disable all other spawns and let Wolves and Skeletons spawn here in any
  biome
0000FF: none, +Wolf, +Skeleton

# Green: disable Wolves and Skeletons (unchanged)
00FF00: -Wolf, -Skeleton
```

Updated for Valheim 1.0 / BC 0.8.0: Setting the file. The config setting is `Spawnmap File` (section `06 BetterContinents.Maps`), the Project Directory file name is `spawnmap.png`, and the console command is `bc spawn fn`. Because "spawnmap" used to be the location map's name, BC treats `Spawnmap File` as an old location map path **whenever** `Locationmap File` **is empty**: at launch it moves the path over to `Locationmap File`, and the image later gets renamed to `locationmap.png` (see Location map). To use a creature spawn map, either use the Project Directory (safe) or also set `Locationmap File`. This behaviour was read from the source and has not been play-tested.

Console

Command: `bc spawn fn`

Updated for Valheim 1.0 / BC 0.8.0: Was `bc param sm fn`; the group is now `spawn`.

5.13 Vegetation map

The vegetation map allows you to control where vegetation (trees, bushes, rocks, and other objects) appears in the world. You can enable or disable vegetation for different areas using specific colors.

Image requirements

- 24 bit RGB PNG
- At least 329x329 resolution to match in-game zones
  - Larger image can be used for more detail when disabling vegetation
- Use black background for default spawns
- Use white color to disable all spawns
- Other colors must match exactly the spawnmap.txt file

Updated for Valheim 1.0 / BC 0.8.0: For the vegetation map the legend file is `vegetationmap.txt`. Every colour-keyed map reads a legend named after its own image. The config setting is `Vegetationmap File` (section `06 BetterContinents.Maps`), the Project Directory file name is `vegetationmap.png`, and the console command is `bc vegetation fn`.

Behavior

- Vegetation are enabled by setting the biome requirement to any biome.
  - Other requirements are currently not affected.
  - This affects the whole 64m x 64m zone.
- Vegetation are disabled by "clear area" system that is more precise.
- `none`: disables all vegetation
- `name`: enables a specific vegetation object
- `-name`: disables a specific vegetation object

> **Updated for Valheim 1.0 / BC 0.8.0:** The line syntax and prefixes are the same as the spawn map's: `none` disables everything except the names on the same line, `+name` enables a vegetation prefab in any biome (for the whole zone), `-name` disables it (precisely, per placement point), a bare `name` only exempts it from `none`, and `*` wildcards work. Pure white means `none`, and a line starting with `#` is a comment.

Examples

```
# Red color enables only Beech trees and Rocks
FF0000: none, Beech1, Rock4_forest

# Blue color disables all vegetation but enables Pine trees
0000FF: none, FirTree

# Green color disables all vegetation starting with "Rock"
00FF00: -Rock*
```

> **Updated for Valheim 1.0 / BC 0.8.0:** In the first two examples the named prefabs are *kept*, not force-enabled: they still only grow where they normally would. Use `+Beech1` to let beeches grow in other biomes too. `FirTree` is the fir; the pine is `Pinetree_01`.

Console

Command: `bc vegetation fn`

> **Updated for Valheim 1.0 / BC 0.8.0:** Was `bc param vm fn`; the group is now `vegetation`.

6 Settings

Settings are separated into two parts:

- **The Config Settings**
  This contains settings that are not specific to any particularly world.
  Some are applied always to any active world (debug settings), and some are baked into the world when it is created (the terrain and spawning settings).
- **The World Settings**
  These are the settings mentioned above, that are 'baked' into the world when it is created. Once baked, they can only be changed using the Console Commands, mentioned below.
  The World Settings to not usually map directly to the values in the Config Settings, instead they are calculated from them.
  Example:

  > In the Config Settings the 'Sea Level Adjustment' is specified as a `0` to `1` value, defaulting to `0.5`, whereas the actual value generated in the World Settings is an absolute one from `-0.25` to `+0.25`, which is then multiplied by `200` in the height generation algorithm to give a final value in meters of `-50` m to `+50` m.
  > So `0` Sea Level Adjustment in the Config Settings translates to `-50 m` change in Sea Level in game.
  > You don't need to worry too much about this, just use the Console Commands below for tweaking these values, and you can immediately see what it looks like in game.

Updated for Valheim 1.0 / BC 0.8.0:

- **The example's numbers have changed.** In BC 0.8.0 the world value is `Lerp(1, -1, SeaLevel)`, from `+1` at 0 to `−1` at 1 and `0` at the default 0.5, so the full range is ±200 m. A config value of `0` raises the land by 200 m (the sea level drops 200 m), and every 0.05 moves the water by 20 m. On new worlds it only has an effect when the world has a heightmap or height layers. See Global.
- **When the config is read.** Better Continents reads its config file once, when the game launches, and bakes the values into a world when the world is created. If you edit `BetterContinents.cfg` on disk, quit and relaunch before creating the world. The Configuration Manager (below) changes the running values directly.
- **Choosing the config when creating a world.** The world-creation panel has a preset dropdown next to the seed. It must be set to **From Config** for the config settings to be baked into the new world. It defaults to *Disabled*, which creates a vanilla world. It also lists the built-in presets (Continents, Pangaea, Swirls, Vanillaish) and any presets you saved with `bc savepreset`, stored in `<save folder>/BetterContinents/presets/`. The dropdown choice itself is remembered in the config as the hidden `SelectedPreset` value.

BepInEx Configuration Manager

Config Settings can be accessed via the in game BepInEx Configuration Manager (see the Setup Guide for installation instructions).
It is opened by pressing F1, after which you can see sections for each BepInEx mod you have installed. Just click the sections to expand them, then change the settings.

> Note: There is no "save" or "apply" button, the settings are saved automatically.

BepInEx Config File

You can also access the Config Settings in the config file itself. This is in the `BepInEx\config` directory in your Valheim installation directory. After running the game once with Better Continents installed the config file will be generated.

Updated for Valheim 1.0 / BC 0.8.0: The file is `BepInEx/config/BetterContinents.cfg`. With a mod manager, look in the profile's `BepInEx/config` folder instead of the game folder. BC 0.8.0 writes these sections:

Section	Settings
`00 BetterContinents.Debug`	Enabled, Debug Mode, Debug Reset Command, Override version, Directory
`01 BetterContinents.Global`	Skip Default Locations, Continent Size, World Size, Edge Size, Fix Water Color, Sea Level Adjustment, Ocean Channels, Ashlands Gap, Deep North Gap, Rivers, Map Edge Drop-off, Mountains Allowed At Center
`02 BetterContinents.Heightmap`	Heightmap File, Heightmap Amount, Heightmap Blend, Heightmap Add, Heightmap Mask, Heightmap Override All, Heightmap Alpha, Roughmap File, Roughmap Blend
`03 BetterContinents.Biomemap`	Biomemap File, Biome precision, Terrainmap file
`04 BetterContinents.Forest`	Forest Scale, Forest Amount, Forest Factor Overrides All Trees, Forestmap File, Forestmap Multiply, Forestmap Add
`05 BetterContinents.StartPosition`	Override Start Position, Start Position X, Start Position Y
`06 BetterContinents.Maps`	Locationmap File, Spawnmap File, Vegetationmap File, Paintmap File, Lavamap File, Mossmap File, Heatmap File, Heatmap Scale
`07 BetterContinents.Misc`	NexusID, SelectedPreset (both hidden from the Configuration Manager)

Numbers use a dot as the decimal separator.

New in BC 0.8.1: A new section, `08 BetterContinents.AltBiomes`, holds the alt-biome settings for new worlds: `Altbiomemap File`, `Mode`, `Grid`, `Fixed Seed`, `Chance Multiplier`, `Amount Multiplier`, `Region Size Scale`, `Distance Scale`, `Min Sector Thickness`, `Mean Sector Height`, `Fix Neighbour Check` and `Overrides`. See Planting alt biomes with colours.

New in BC 0.9.0: `07 BetterContinents.Misc` also holds `Settings Transfer Rate` (`Vanilla`, `KB256`, `KB384`, `KB512`, `KB768`, `MB1`, `MB1_5`, `MB3`, `Unlimited`): how fast a host or dedicated server sends a joining player their Better Continents settings and image maps. Only the sending machine's value counts. A new section, `09 BetterContinents.Export`, holds the export HUD's settings. Both are described in Export and Import.

Console Commands

When you are loaded into a world that was created with Better Continents enabled, you can use an extensive set of console commands to modify the World Settings.
Open the Console with F1 (this mod enables it always), and then enter `bc` to get help on the basic commands. See the specific settings in this documentation (they are organised by group) for examples and documentation for each command.

Updated for Valheim 1.0 / BC 0.8.0:

- **The console opens with F5** (F1 is the Configuration Manager). Better Continents still enables the console.
- `bc` **is a cheat command**, and it only runs on the machine that hosts the world (single player, or the server). Enable cheats with `devcommands` first; *Debug Mode* does this for you when you spawn. Valheim 1.0 also asks you to run `confirmcheats` before the first cheat command, which permanently marks the character as having used cheats, so use a test character.
- **The syntax is** `bc <group> <setting> [value]`**.** There is no `param` level any more, so the old `bc param g sl 0.5` is now `bc g sl 0.5`. Leave the value off to print the current value, or write `help` instead to see the range and description. On/off settings take `true` or `false`; the old `0`/`1` form is not accepted.
- **Every change** regenerates the terrain and the map, and runs the *Debug Reset Command* (default `zones_reset start`, from Upgrade World) so that already-generated zones are rebuilt. Without that reset, zones that were already generated keep their old locations and vegetation.
- **Changes are saved** into the world's settings the next time the world saves.

New in BC 0.8.1: A change to the maps or settings in game now also rebuilds the world's biome grid, which in Valheim 1.0 decides terrain biomes as well as alt biomes, before the zones are reset. With 0.8.0 the grid kept following the old map until the world was loaded again. See The cache file.

Console command reference

Updated for Valheim 1.0 / BC 0.8.0: This section is new in this edition. It lists the complete `bc` command tree of BC 0.8.0.

Command	What it does
`bc`	Lists the commands
`bc info`	Prints the world's settings (the same output BC writes to the log)
`bc reload <map>`	Re-reads an image map from disk: `hm`, `rm`, `fm`, `bm`, `terrain`, `lm`, `fom`, `paint`, `lava`, `moss`, `vegetation`, `heat`, `spawn` or `all` (only maps the world uses are offered)
`bc locs`	Counts placed locations and warns about missing key locations
`bc bosses`	Pins the bosses, start temple, trader and the Queen's entrance on the map
`bc show [prefix …]`	Pins every location whose name starts with a prefix (all locations if none is given)
`bc hide [prefix …]`	Removes those pins. With no prefix it removes **every** pin on the map, your own included
`bc clouds`	Toggles the clouds on the large map
`bc mapds [0-3]`	Minimap downscaling power for faster regeneration (default 2)
`bc reset`	Regenerates the terrain and the map (done automatically after every change)
`bc scr [size]`	Saves the map as a PNG (default 2048 px) in `<save folder>/BetterContinents/<world name>/`
`bc savepreset [name]`	Saves the world's settings as a preset with a map thumbnail
`bc g …`	Global: `cs`, `sl`, `r`, `ag`, `ng`, `me`, `mc`, `worldsize`, `edgesize`, `fixwatercolor`, `skipdefaultlocations`
`bc h …`	Heightmap: `fn`, `am`, `bl`, `ad`, `ma`, `ov`, `alpha`

Command	What it does
`bc r …`	Roughmap: `fn`, `bl`
`bc b …`	Biome map: `fn`, `p`
`bc terrain fn`	Terrain map file
`bc l fn`	Location map file
`bc paint fn`, `bc lava fn`, `bc moss fn`	Paint, lava and moss map files
`bc vegetation fn`, `bc spawn fn`	Vegetation and spawn map files
`bc heat …`	Heat map: `fn`, `sc`
`bc fo …`	Forest: `sc`, `am`, `ffo`, `fn`, `mu`, `add`
`bc st …`	Start position: `os`, `x`, `y`
`bc hl …`	Height layers
`bc ab …`	New in BC 0.8.1: alt biomes: the alt-biome map, the mode, the grid, the random-placement controls and the reports. `bc reload ab` re-reads the alt-biome map. `bc ab help` lists the group.
`bc_altbiomes …`	New in BC 0.8.1: a separate command for every player, on a client or on a host: the region you stand in, the alt-biome names and colours, and whether this machine's alt biomes agree with the server's. See Reports and commands.

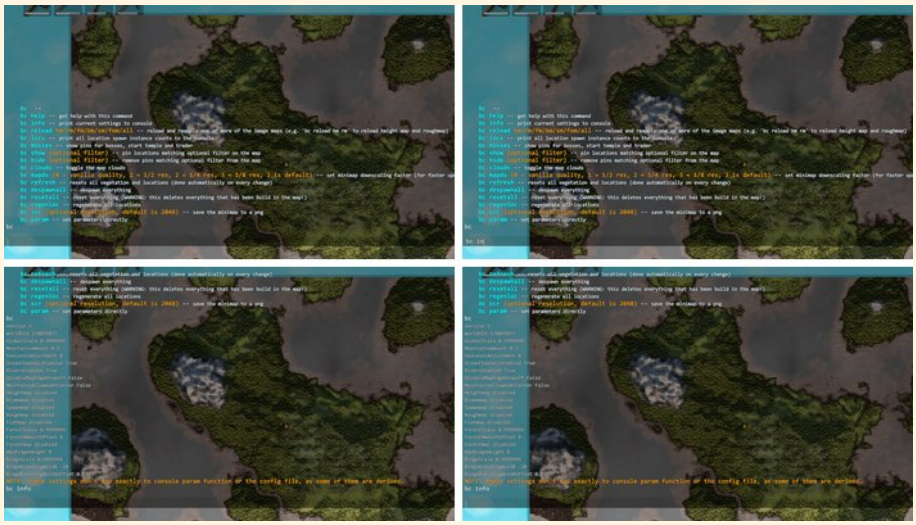
The original repository also contains four recordings that no page of the site displayed. They were recorded with an older Better Continents, so the commands they show include some that no longer exist (`bc param`, `bc refresh`, `bc despawnall`, `bc resetall` and `bc regenloc`).

Typing `bc` for help (older version):



Frames 1, 33, 65 and 96 of 96 from the original animation `bc-help.gif` *(20 s), left to right, top to bottom.*

`bc info`:



Frames 1, 7, 13 and 19 of 19 from the original animation `bc-info.gif` *(5 s), left to right, top to bottom.*

`bc clouds`:



Frames 1, 12, 24 and 35 of 35 from the original animation `bc-clouds.gif` *(7 s), left to right, top to bottom.*

`bc mapds`:



Frames 1, 13, 25 and 36 of 36 from the original animation `bc-mapds.gif` *(38 s), left to right, top to bottom.*

The in-game settings window

> **Updated for Valheim 1.0 / BC 0.8.0:** This section is new in this edition and was read from the source code. With **Debug Mode** on, on the machine hosting the world, a *Better Continents* button appears at the top left while the menu (Esc) or the large map is open. Alt+F8 also toggles the window. The button opens the *Better Continents World Settings* window, which shows the same command tree as the console, with toggles, drop-downs and text fields, plus previews of the height layer noise.

6.1 Global

These settings affect the entire map.

> **Updated for Valheim 1.0 / BC 0.8.0: What applies to new worlds.** Worlds created with BC 0.8.0 use Better Continents' third-generation height function. It only takes over from vanilla's terrain when the world has a heightmap or at least one height layer. Without either, the terrain is vanilla, and Continent Size, Sea Level Adjustment and Mountains Allowed At Center have no effect. The older height function, and with it Mountains Amount, Ocean Channels and the ridges, is only used by worlds whose settings are stored in the old save formats (1 to 6). All of these settings are in the config section `01 BetterContinents.Global`, except *Enabled*, which is in `00 BetterContinents.Debug`.

Enabled SETTING

Whether this mod is enabled. If this is `false` when you create a new world then no features of Better Continents will affect that world. It disables BC Debug mode on that world as well.

> Default `true`

> **Updated for Valheim 1.0 / BC 0.8.0:** It only matters when the world is created from the config, that is with the preset dropdown set to *From Config*.

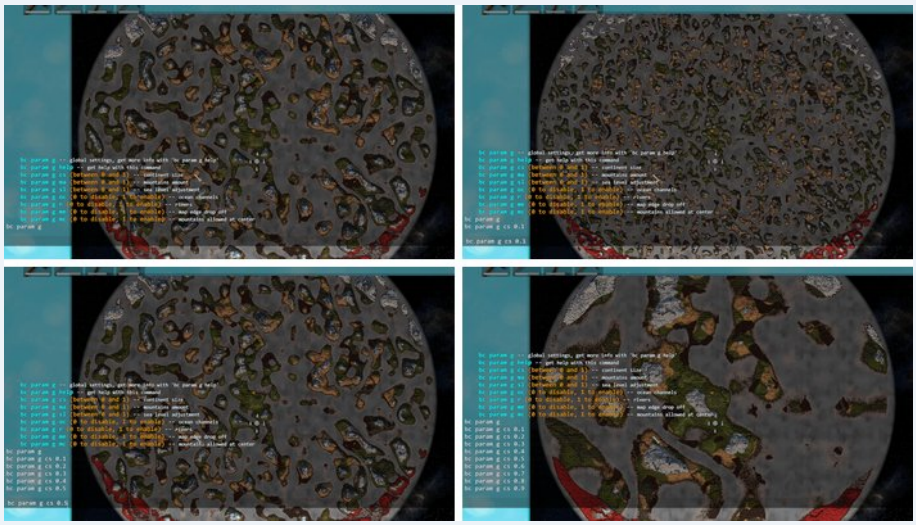
Continent Size SETTING

Continent size.

> Default `0.5`
> Range `0` to `1`

> **Updated for Valheim 1.0 / BC 0.8.0:** On worlds created with BC 0.8.0, Continent Size only changes the size of the height layer noise features. It does not scale a heightmap or vanilla terrain. BC turns the value into a scale of 3.0 (at 0), 1.0 (at 0.5) or 0.2 (at 1) and divides each layer's frequency by it. So, unlike on older worlds, **higher values make the noise features smaller**, and 0.5 leaves them unchanged. This was worked out from the source code.

> **Console**
> Command: `bc g cs`
>
> > **Updated for Valheim 1.0 / BC 0.8.0:** Was `bc param g cs`. The animation was recorded with the old syntax, on an old-style world.



Frames 1, 33, 65 and 97 of 97 from the original animation `bc-param-g-cs.gif` *(32 s), left to right, top to bottom.*

Mountains Amount SETTING

Mountains amount.

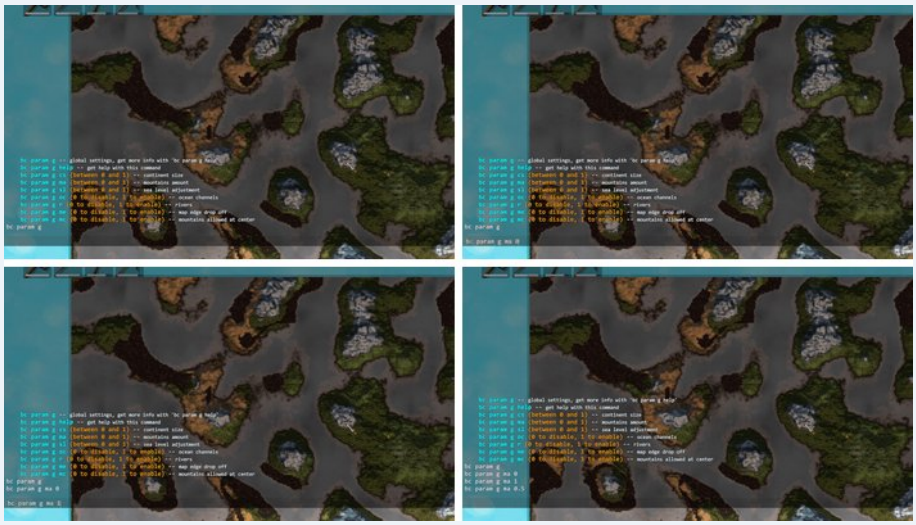
Default `0.5`
Range `0` to `1`

Updated for Valheim 1.0 / BC 0.8.0: Removed. BC 0.8.0 has no Mountains Amount in the config and no console command for it (`bc g ma` does not exist). Only worlds stored in the old save formats keep and use a mountains amount.

Console

Command: `bc param g ma`

Updated for Valheim 1.0 / BC 0.8.0: This command no longer exists. The animation shows an older version.



Frames 1, 17, 33 and 48 of 48 from the original animation `bc-param-g-ma.gif` *(21 s), left to right, top to bottom.*

Sea Level Adjustment SETTING

Modify sea level, which changes the land:sea ratio.

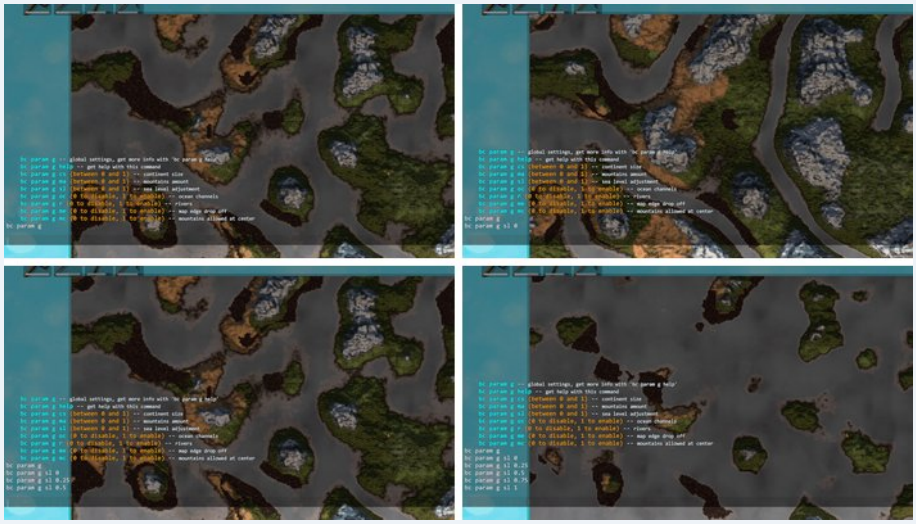
> Default `0.5`
> Range `0` to `1`

> **Updated for Valheim 1.0 / BC 0.8.0:** In BC 0.8.0 the height offset is `Lerp(1, -1, SeaLevel)`, which is 0 at the default 0.5, so every 0.05 raises (above 0.5) or lowers (below 0.5) the water by 20 m relative to the land. With a heightmap at the default Heightmap Amount, the waterline sits at heightmap value (2 × SeaLevel − 0.7): 0.30 at the default, 0 at a Sea Level of 0.35 (no sea at all) and 1.0 at 0.85 (everything under water). For example, `bc g sl 0.55` raises the water by 20 m. On new worlds it has no effect without a heightmap or height layers. See Heightmap.

Console

Command: `bc g sl`

> **Updated for Valheim 1.0 / BC 0.8.0:** Was `bc param g sl`. The animation was recorded with the old syntax, on an old-style world with the old ±50 m range.



Frames 1, 27, 54 and 80 of 80 from the original animation `bc-param-g-sl.gif` *(35 s), left to right, top to bottom.*

Ocean Channels SETTING

Whether ocean channels should be enabled or not (useful to disable when using height map for instance).

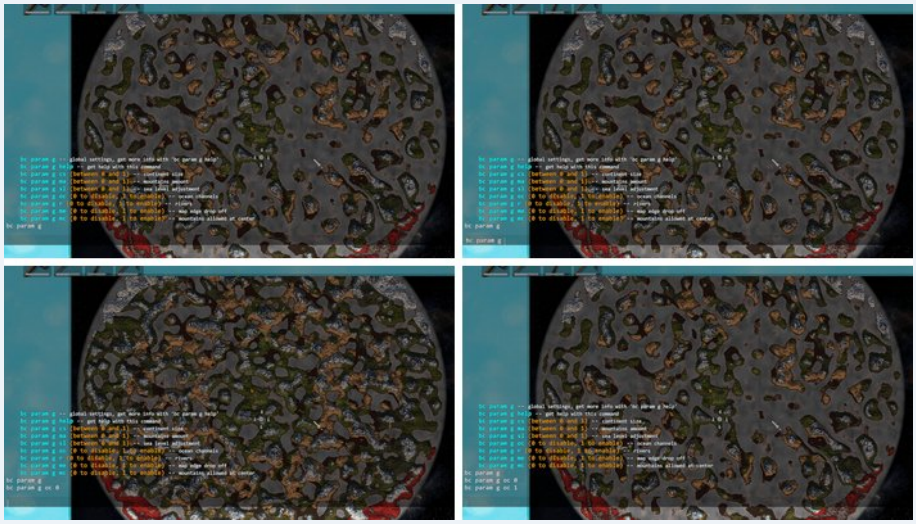
> Default `true`

> **Updated for Valheim 1.0 / BC 0.8.0:** The setting is still in the config, but the height function used by new worlds has no ocean channels, so it has no effect on them, and there is no console command for it any more. It only affects worlds stored in the old save formats.

Console

Command: `bc param g oc`

> **Updated for Valheim 1.0 / BC 0.8.0:** This command no longer exists. The animation shows an older version.



Frames 1, 13, 25 and 37 of 37 from the original animation `bc-param-g-oc.gif` *(16 s), left to right, top to bottom.*

Rivers SETTING

Whether rivers should be enabled or not.

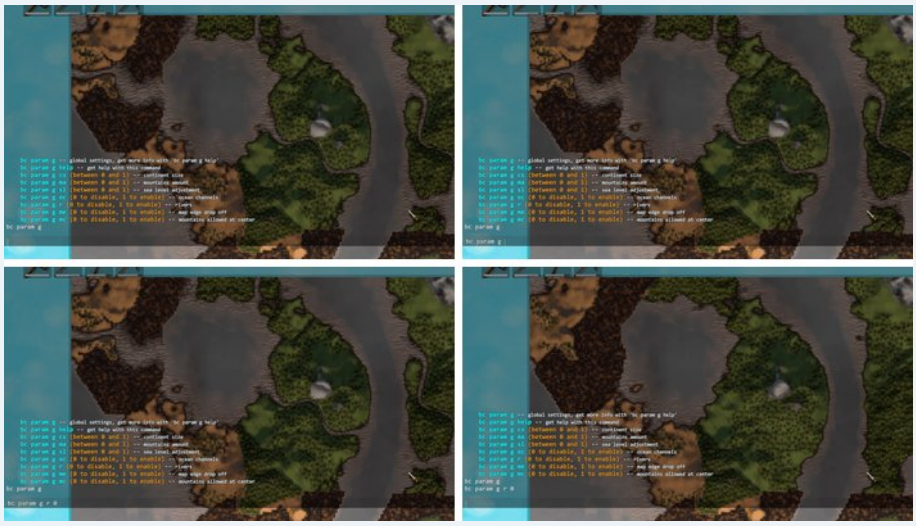
> Default `true`

> **Updated for Valheim 1.0 / BC 0.8.0:** With a heightmap and Heightmap Override All on (the default), vanilla's rivers never appear whatever this says: carve rivers and lakes into the heightmap.

Console

Command: `bc g r`

> **Updated for Valheim 1.0 / BC 0.8.0:** Was `bc param g r`. The value is `true` or `false`; the animation shows the old `0`/`1` form.



Frames 1, 19, 38 and 56 of 56 from the original animation `bc-param-g-r.gif` *(19 s), left to right, top to bottom.*

Map Edge Drop-off SETTING

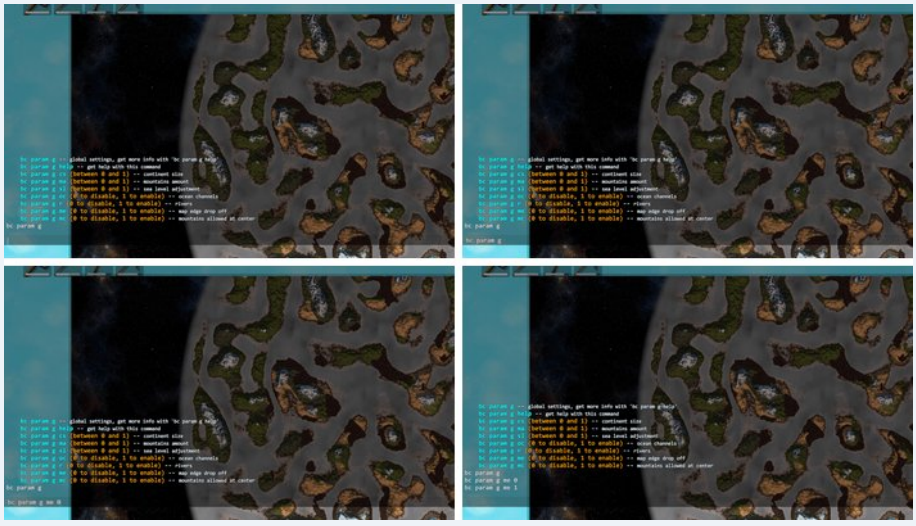
Whether the map should drop off at the edges or not (consequences unknown!).

> Default `true`

Console

Command: `bc g me`

> **Updated for Valheim 1.0 / BC 0.8.0:** Was `bc param g me`. The value is `true` or `false`; the animation shows the old syntax.



Frames 1, 15, 29 and 43 of 43 from the original animation `bc-param-g-me.gif` *(17 s), left to right, top to bottom.*

New in BC 0.8.1: Land beyond 10,500 m. Valheim's biome grid ends at 10,500 m, and every grid point beyond it is ocean. With Map Edge Drop-off off, land can continue past 10,500 m, and it took the ocean's grid region for its terrain biome, vegetation and spawns. Better Continents 0.8.1 gives it a plain region of its real biome instead, without alt biomes. See How Valheim assigns them.

Mountains Allowed At Center SETTING

Whether the map should allow mountains to occur at the map center (if you have default spawn then you should keep this unchecked).

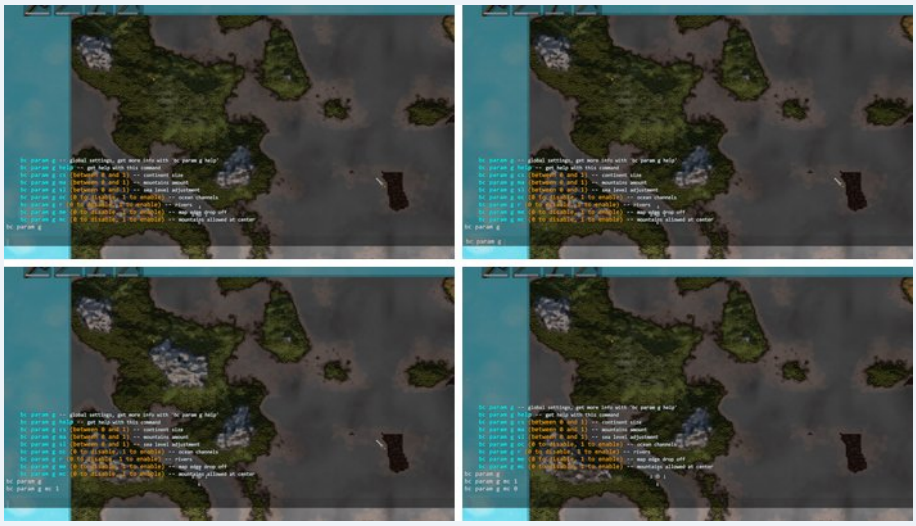
> Default `false`

> **Updated for Valheim 1.0 / BC 0.8.0:** This applies to heightmaps too. While it is off, BC caps the terrain within about 600 m of the world centre at 46 m above the water (a height of 0.38 before the × 200), and blends back to the full height by 1,000 m from the centre.

Console

Command: `bc g mc`

> **Updated for Valheim 1.0 / BC 0.8.0:** Was `bc param g mc`. The value is `true` or `false`; the animation shows the old syntax.



Frames 1, 19, 37 and 54 of 54 from the original animation `bc-param-g-mc.gif` *(19 s), left to right, top to bottom.*

World Size SETTING

> **Updated for Valheim 1.0 / BC 0.8.0:** This setting is new in this edition's coverage. It is the world radius in metres. Default `10000`. Console: `bc g worldsize`. It moves the edge-of-the-world mechanics: where ships are pushed back and players are killed, and the water and wind at the edge. It does not stretch the image maps, which on a Better Continents world always cover the square from −10,500 m to +10,500 m on each axis (the Expand World Size mod can change that).

> **New in BC 0.8.1: Expand World Size.** When Better Continents runs together with the Expand World Size mod, a world with a radius under 10,500 m no longer crashes (EWS issue #26), and larger worlds now map alt-biome regions correctly, together with the terrain biomes that come from the same biome grid. On its own, Better Continents 0.8.1 can also stop that grid at a world edge inside 10,500 m; see the *Grid* setting under Planting alt biomes with colours.

Edge Size SETTING

> **Updated for Valheim 1.0 / BC 0.8.0:** This setting is new in this edition's coverage. It is the width in metres of the band at the edge of the world, beyond the world radius. Default `500`. Console: `bc g edgesize`.

Ashlands Gap SETTING

> **Updated for Valheim 1.0 / BC 0.8.0:** This setting is new in this edition's coverage. It controls whether vanilla's ocean gap around the Ashlands is kept ("usually custom maps don't need this"). Default `false`, which means BC removes the gap. Console: `bc g ag`.

Deep North Gap SETTING

> **Updated for Valheim 1.0 / BC 0.8.0:** This setting is new in this edition's coverage. It controls whether vanilla's ocean gap around the Deep North is kept. Default `false` (removed). Console: `bc g ng`.

Skip Default Locations SETTING

> **Updated for Valheim 1.0 / BC 0.8.0:** This setting was covered on the Debug page, and since 0.7.30 it lives in this section and is saved with the world. It skips the default location placement; the start temple and the location map's locations are still placed. Default `false`. Console: `bc g skipdefaultlocations`.

Fix Water Color SETTING

> **Updated for Valheim 1.0 / BC 0.8.0:** This setting is new in this edition's coverage. Config description: *Whether to fix the water color.* Default `true`. Console: `bc g fixwatercolor`. In the BC 0.8.0 source the value is stored with the world, but the code that used it is switched off, so it currently has no effect.

6.2 Project

The project setting allows the use of standardized names for the image maps to enable automatically using them from a specified directory. This works only from the config during world generation. Once the world is generated the console commands can be used to change the filepath for each image map separately.

Directory SETTING

This directory will load automatically any existing map files matching the correct names, overriding specific files specified below.

Only png is supported using this method, however png is the recommended format in general as it supports both 16 bit grayscale, and 8 bit RGB, and these cover the requirements of all the image types.

If you specify a directory, the specific file path settings are all ignored, even if the project directory doesn't contain a file that would override them. i.e. You can *either* specifiy a Project Directory and follow these naming conventions, OR you must specify each file path separately using its associated setting (in the

table below). You can't mix these methods.

> **Updated for Valheim 1.0 / BC 0.8.0:** The setting is `Directory` in the config section `00 BetterContinents.Debug`. In the console, a map's `fn` command also resolves bare file names against this directory: for example `bc h fn heightmap` finds `heightmap.png` there.

> **New in BC 0.9.4:** If the directory holds an `export.cfg`, it is the folder of a world export, and a new world created with **From Config** also takes the settings in that `export.cfg`, laid over `BetterContinents.cfg` the way an import lays them. Its settings win: to use a value of your own, such as another Heightmap Amount, edit `export.cfg` in the folder or delete it. `Directory` itself stays as `BetterContinents.cfg` has it, so a moved or copied export folder loads its maps from where it is now, and nothing is written to either file. The log (`BepInEx/LogOutput.log`) says *Directory … holds a world export* and lists every setting that differs from your config. A directory without `export.cfg`, such as your own maps, works as before: every setting comes from `BetterContinents.cfg`. Before 0.9.4 an export folder loaded this way kept the config's default Heightmap Amount of 1, but an export stores its heights for Amount 2, so the world came out almost all ocean.

Filenames

File Name	Target Setting
`heightmap.png`	Heightmap File
`roughmap.png`	Roughmap File
`flatmap.png`	Flatmap File
`biomemap.png`	Biomemap File
`forestmap.png`	Forestmap File
`spawnmap.png`	Spawnmap File

> **Updated for Valheim 1.0 / BC 0.8.0:** The complete list of file names BC 0.8.0 looks for in the directory:
>
> | File Name | Map |
> |---|---|
> | `heightmap.png` | Heightmap |
> | `roughmap.png` | Roughmap |
> | `biomemap.png` | Biome map |
> | `terrainmap.png` | Terrain map |
> | `heatmap.png` | Heat map |
> | `paintmap.png` | Paint map |
> | `lavamap.png` | Lava map |
> | `mossmap.png` | Moss map |
> | `forestmap.png` | Forest map |
> | `locationmap.png` | Location map (what older versions called the spawnmap) |
> | `spawnmap.png` | Spawn map, the creature spawn map |
> | `vegetationmap.png` | Vegetation map |
>
> `flatmap.png` is no longer loaded (see Flatmap). The colour legends (`biomemap.txt`, `terrainmap.txt`, `paintmap.txt`, `locationmap.txt`, `spawnmap.txt`, `vegetationmap.txt`) are read from the same folder, and BC writes any that are missing.

New in BC 0.8.1: One more file name: `altbiomemap.png`, the alt-biome map, with its legend `altbiomemap.txt`. When the directory is set, only a file of this name in it is used, as for every map.

6.3 Ridges

Ridges are an extra layer of procedural noise generation (i.e. not using an image, but calculated "randomly" instead) you can introduce into the height generation that have a "ridged" and/or "warped" appearance. This can give quite interesting and realistic topology, roughly emulating folding, or the collision of tectonic plates.

Updated for Valheim 1.0 / BC 0.8.0: The ridge settings are gone. BC 0.8.0 has no ridge settings in the config and no `ri` console group; the commands are commented out in the source. Only worlds whose settings are stored in the old save formats still use their stored ridge values. For new worlds, ridged and warped terrain comes from the Height Layers: apply the *Ridges* noise preset to a layer (`bc hl <n> npreset ri`), and add a noise warp for the folded look. The original descriptions and recordings below are kept for reference.

Max Ridge Height SETTING

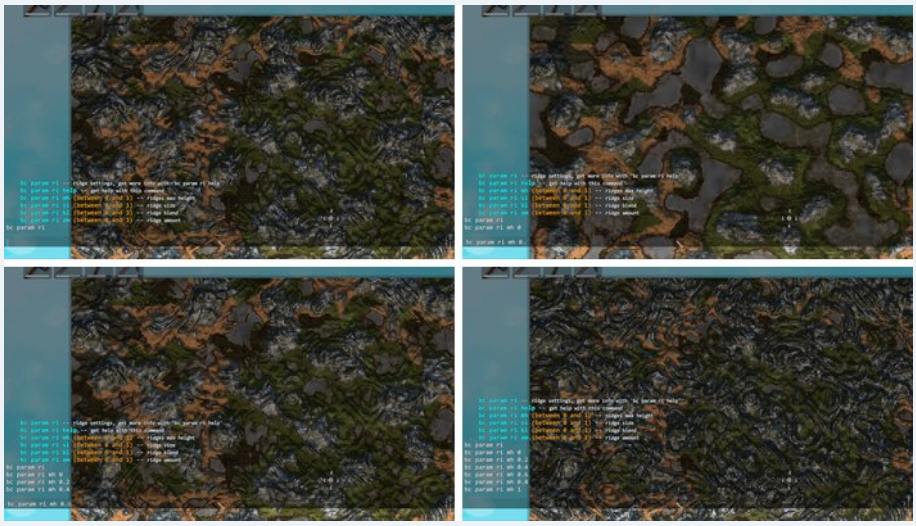
Max height of ridge features (set this to 0 to turn OFF ridges entirely).

Default `0.5`
Range `0` to `1`

Console

Command: `bc param ri mh`

Updated for Valheim 1.0 / BC 0.8.0: This command no longer exists.



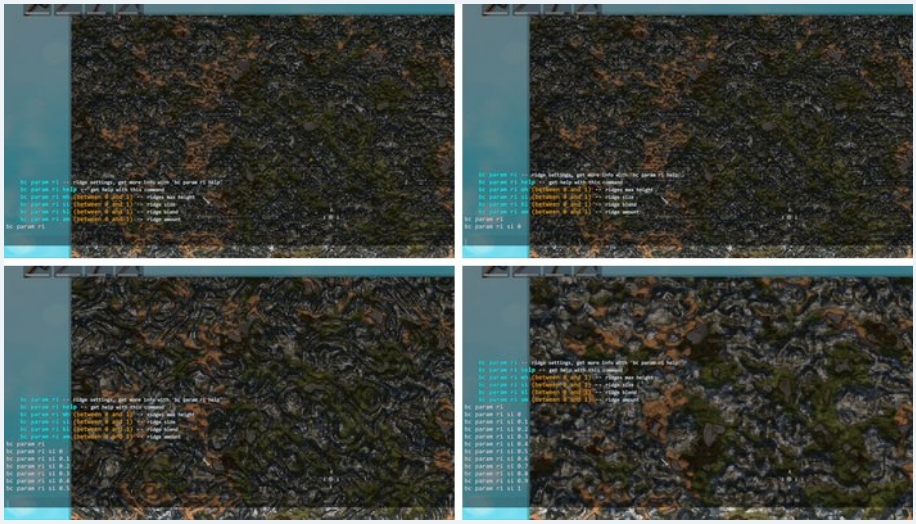
Frames 1, 22, 44 and 65 of 65 from the original animation `bc-param-ri-mh.gif` *(24 s), left to right, top to bottom.*

Ridge Size SETTING

Size of ridge features.

> Default `0.5`
> Range `0` to `1`

> **Console**
> Command: `bc param ri si`
>
> **Updated for Valheim 1.0 / BC 0.8.0:** This command no longer exists.



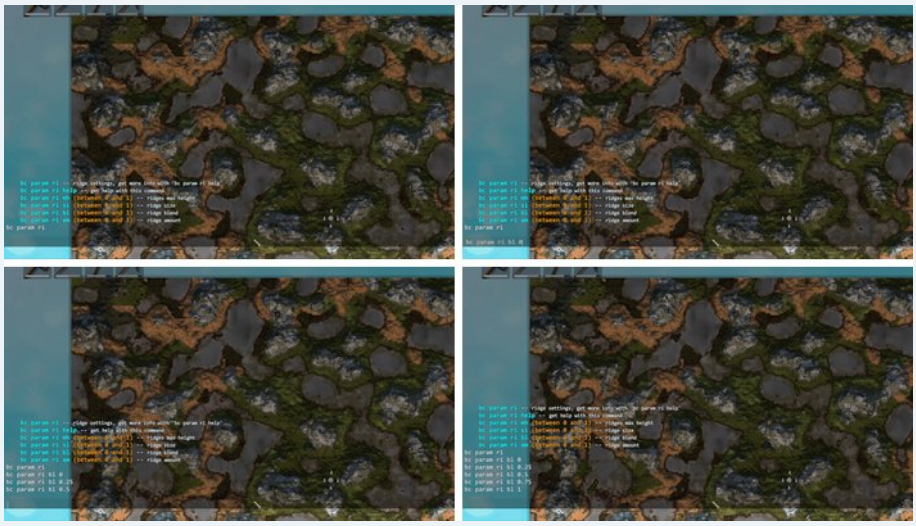
Frames 1, 32, 63 and 93 of 93 from the original animation `bc-param-ri-si.gif` *(32 s), left to right, top to bottom.*

Ridge Blend SETTING

Smoothness of ridges blending into base terrain.

> Default `0.5`
> Range `0` to `1`

> **Console**
> Command: `bc param ri bl`
>
> **Updated for Valheim 1.0 / BC 0.8.0:** This command no longer exists.



Frames 1, 21, 41 and 60 of 60 from the original animation `bc-param-ri-bl.gif` *(18 s), left to right, top to bottom.*

Ridge Amount SETTING

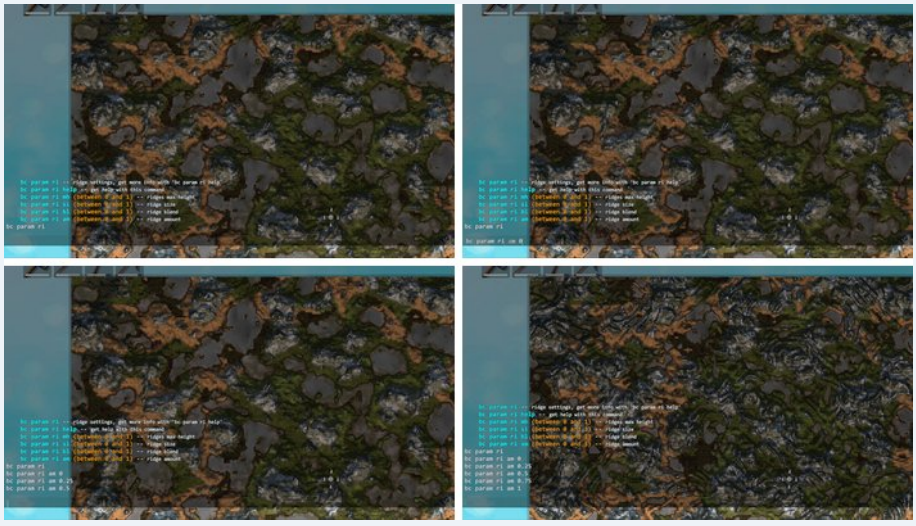
How much ridges.

Default `0.5`
Range `0` to `1`

Console

Command: `bc param ri am`

> **Updated for Valheim 1.0 / BC 0.8.0:** This command no longer exists.



Frames 1, 25, 49 and 72 of 72 from the original animation `bc-param-ri-am.gif` *(22 s), left to right, top to bottom.*

6.4 Height Layers

> **Updated for Valheim 1.0 / BC 0.8.0:** This chapter is new in this edition. All of its text is edition text, worked out from the BC 0.8.0 source code. The original guide does not cover height layers. They replace the Ridges and the Flatmap on new worlds.

Height layers are Better Continents' procedural terrain for new worlds. A world can have any number of layers of FastNoiseLite noise. Each has its own noise type, fractal settings, optional domain warp, optional mask and a Photoshop-style blend mode, and they are applied in order on top of the heightmap. A world with neither a heightmap nor any height layer uses vanilla terrain.

The config has no entries for height layers. You build them in game with the `bc hl` commands or in the settings window. They are saved with the world, and `bc savepreset <name>` saves them into a preset. Choosing that preset in the world-creation dropdown is how a new world gets them. The four built-in presets (Continents, Pangaea, Swirls, Vanillaish) are all three-layer stacks:

1. a base fBm layer (blend Normal);
2. an fBm detail layer with a noise warp and a warped mask;
3. a warped, non-fractal layer multiplied over the result (blend Multiply).

How layers combine

For every point, BC starts from the heightmap's value (`heightmapValue × Heightmap Amount` with the default heightmap settings), or from 0 when there is no heightmap. It then applies the layers in order:

```
layerValue = Blend(value, noise, blendMode)
value      = mask ? Lerp(value, layerValue, maskNoise) : layerValue
```

The result then goes through the usual `− 0.15 + SeaLevelAdjustment`, and the height in metres is that × 200 (see Heightmap). Points to know:

- Each noise is normalised to the range 0–1 over the world, then passed through the layer's filters in this order: invert, smooth threshold, range, threshold, opacity.
- **A new layer's blend mode is Normal, which replaces everything below it**, including your heightmap, unless the layer is masked. To add detail on top of a heightmap instead of replacing it, choose another blend mode (for example *LinearDodge*, which adds, combined with a small *Range*), or give the layer a mask.
- Blend modes (*a* is the value so far, *b* is the layer): Normal (*b*), Darken (min), Multiply, ColorBurn, LinearBurn, Lighten (max), Screen, ColorDodge, LinearDodge (*a* + *b*), Overlay, HardLight, SoftLight, VividLight, LinearLight, PinLight, HardMix, Difference, Exclusion, Subtract (*a* - *b*), Divide.
- Masks, and mask presets, are available from the second layer (layer 1) on.
- Frequencies are in cycles per metre (the default 0.0005 is one cycle every 2 km), and are divided by the scale set by Continent Size.
- Layer seeds are derived from the world seed.

Commands

Layers are numbered from 0. Every change regenerates the terrain, like any other `bc` change.

Command	What it does
`bc hl add`	Adds a layer at the end: OpenSimplex2 fBm, 7 octaves, frequency 0.0005, blend Normal
`bc hl <n> npreset def`	Resets the layer's noise to the default fBm noise
`bc hl <n> npreset ri`	Sets the layer's noise to the *Ridges* preset (ridged fractal)
`bc hl <n> n <setting> [value]`	The layer's noise settings (table below)
`bc hl <n> nw on true`	Adds a domain warp to the noise, whose settings are then under `bc hl <n> nw ...`. `on false` removes it
`bc hl <n> mpreset def` / `25%`	Layers 1 and up: sets a default mask with smooth-threshold values 0.6–0.75 (the command's description says "about 25 % coverage"). In the 0.8.0 source the preset does not switch the smooth threshold on, so follow it with `bc hl <n> m ust true`
`bc hl <n> mpreset ri`	As above, plus a mask warp for ridge-like shapes
`bc hl <n> m on true`	Layers 1 and up: enables a mask, whose settings are then under `bc hl <n> m ...`. `on false` removes it
`bc hl <n> mw on true`	Layers with a mask: adds a warp to the mask (`bc hl <n> mw ...`)
`bc hl <n> delete`	Deletes the layer
`bc hl <n> down`	Swaps the layer with the next one (for layers between the first and the last)

Noise, warp and mask settings share these keys. Some only appear when they apply: the fractal keys when the fractal type is not None, `ps` for PingPong, the `c...` keys for Cellular noise, and `dt`/`da` for warps.

Key	Setting	Values
`nt`	Noise type	OpenSimplex2, OpenSimplex2S, Cellular, Perlin, ValueCubic, Value
`fq`	Frequency	default 0.0005
`asp`	Aspect ratio (scales y relative to x)	default 1
`ft`	Fractal type	None, FBm, Ridged, PingPong. For warps: None, DomainWarpIndependent, DomainWarpProgressive
`fo`	Fractal octaves	1 to 10
`fl`	Fractal lacunarity	0 to 10, default 2
`fg`	Fractal gain	0 to 2, default 0.5
`ws`	Fractal weighted strength	−2 to 2, default 0
`ps`	Ping-pong strength	0 to 10, default 2
`cf`	Cellular distance function	Euclidean, EuclideanSq, Manhattan, Hybrid
`ct`	Cellular return type	CellValue, Distance, Distance2, Distance2Add, Distance2Sub, Distance2Mul, Distance2Div
`cj`	Cellular jitter	0 to 2, default 1
`dt`	Domain warp type	OpenSimplex2, OpenSimplex2Reduced, BasicGrid
`da`	Domain warp amplitude (m)	0 to 20000. The warp presets use 4000
`in`	Invert	true / false
`ust`, `sts`, `ste`	Smooth threshold: on, start, end	start and end −1 to 1
`ura`, `ras`, `rae`	Range: on, start, end (rescales 0–1 to start–end)	−1 to 1
`uth`, `th`	Hard threshold: on, value	0 to 1
`uop`, `op`	Opacity: on, value	0 to 1. See the note below

Key	Setting	Values
`blm`	Blend mode	see above

Things to know in BC 0.8.0:

- **List settings need the settings window.** The console can only parse text, numbers and `true`/`false`, so typing a value for a setting that is picked from a list (`nt`, `ft`, `cf`, `ct`, `dt`, `blm`) fails with an error. Change those in the settings window (Debug Mode), which also shows a preview image of each layer and of the final result.
- **Opacity is miswired.** The op command reads and writes the layer's *Threshold* value instead of its opacity, so opacity cannot currently be set. Use *Range* to scale a layer down instead.

6.5 Start Position

Override Start Position SETTING

Whether to override the start position using the values provided (warning: will disable all validation of the position).

> Default false

Start Position X SETTING

Start position override X value, in ranges -10500 to 10500.

> Default `0`
> Range `-10500` to `10500`

Start Position Y SETTING

Start position override Y value, in ranges -10500 to 10500.

> Default `0`
> Range `-10500` to `10500`

Updated for Valheim 1.0 / BC 0.8.0: The values are world coordinates in metres. *Y* is the world's north–south axis (Valheim's z), with north positive. The settings are in the config section `05 BetterContinents.StartPosition`. In the console they are `bc st os` (`true`/`false`), `bc st x` and `bc st y`. The console help for `x` and `y` shows a range of 0 to 1, but the values are used as metres, as in the config. The start temple is registered at that position when the world's locations are generated, so the override only matters when the world is created.

6.6 Debug

Debug Mode SETTING

Automatically reveals the full map on respawn, enables cheat mode, and debug mode.

> **Updated for Valheim 1.0 / BC 0.8.0:** Default `false`, in the config section `00 BetterContinents.Debug`. In the 0.8.0 source, Debug Mode takes effect on the machine that hosts a Better Continents world. When you spawn it switches on `devcommands`, it shows *Better Continents Debug Mode Enabled!* at the top left, and it enables the settings window. The full map is revealed whenever a `bc` change regenerates the map.

Skip Default Location Placement SETTING

Skips default location placement during world gen, the spawn temple and spawnmap items are still placed. This is particularly useful when vanilla spawn placement during world creation is likely to fail, and you don't want to wait for it.

> **Updated for Valheim 1.0 / BC 0.8.0:** Since 0.7.30 this setting is called `Skip Default Locations`, lives in the config section `01 BetterContinents.Global` and is saved with the world. Its console command is `bc g skipdefaultlocations`. "Spawnmap items" means the location map's locations. It also skips the locations that Valheim 1.0's alt biomes add.

Debug Reset Command SETTING

> **Updated for Valheim 1.0 / BC 0.8.0:** This setting is new in this edition's coverage. It is the console command BC runs after every world-setting change made with `bc` (and on `bc reset`), described in the config as the *Upgrade World command to execute when reloading images*. Default `zones_reset start`. Upgrade World's `zones_reset` resets already-generated zones so that they regenerate with the new settings. Use it on test worlds only. Without Upgrade World installed, the command does nothing.

Override version SETTING

> **Updated for Valheim 1.0 / BC 0.8.0:** This setting is new in this edition's coverage. Config description: *Override the save version*. It makes BC write its settings in an older save format. It is a developer option: leave it empty.

7 Alt Biomes

Updated for Valheim 1.0 / BC 0.8.0: This chapter is new in this edition, and all of its text is edition text. The alt biome data was extracted from the game's own asset bundles (the list `AltBiomes_Erik`), and the assignment rules were read from the game code. The sizes in the tables were calculated for round regions on the game's 12 m grid.

New in BC 0.8.1: Better Continents 0.8.1 lets you plant alt biomes where you want them, gives world owners control over the game's random placement, and fixes bugs in the pipeline that decides them. See Planting alt biomes with colours. Worlds that use none of the new features get the same regions and the same alt biomes as with 0.8.0.

What alt biomes are

Valheim 1.0 has **32 alt biomes**: named variants that the game layers onto whole regions of a biome, such as *Dark Meadows*, *Birch Meadows*, *Troll Black Forest*, *Bog Swamp*, *Wolf Mountain*, *Goblin Plains* or *Rockless Mistlands*. An alt biome can add or remove creature spawns, add or remove vegetation, add or remove locations, remove weather types, and raise the chance that creatures spawn at a higher level. (The game's alt biome format can also rename a region or force music or weather, but none of the 32 do.) Each region can carry several alt biomes at once, as long as they are not incompatible with each other.

Alt biomes are not painted anywhere. The game assigns them every time a world loads, from the world's shape and its seed. On a Better Continents world, "the world's shape" is your maps, so your biome map and heightmap decide which alt biomes can exist and where.

New in BC 0.8.1: You can now also paint them: an alt-biome map plants chosen alt biomes on chosen regions, and the game's random placement fills in the rest (or nothing, if you prefer). See Planting alt biomes with colours.

Coverage by biome: Meadows and Black Forest each have 9 possible alt biomes (counting those shared with other biomes), Mistlands 7, Swamp 6, Plains 6, Mountain 4 and Deep North 1 (*Lantern*). Ashlands and Ocean have none.

How Valheim assigns them

1. **Sampling.** When a world loads, on the server and on every client separately, the game samples it on a **2048 × 2048 grid of points 12 m apart**, centred on the world centre. Every point records its biome and its height. Points more than 10,500 m from the centre count as Ocean. With Better Continents, the biome comes from your biome map and the height from your heightmap and height layers.
2. **Sectors.** Every **4-connected region of one biome** (neighbours left, right, up and down; diagonals do not count) becomes a *sector*. The exceptions are **Ashlands, Deep North and Ocean**, which are each a **single global sector** containing all of that biome's points, wherever they are.
3. **Measuring a sector.** A point is an *edge point* if one of its four neighbours belongs to a different sector. For every sector the game records:
   - **edge count**, the number of its edge points, which for a round region is about **0.47 × its radius in metres**;
   - **centre**, the mean position of its edge points, and the **distance from the world centre** to that point;
   - **height**, the midpoint between the lowest and the highest height found on its edge points.

4. **Rules.** A sector can receive an alt biome only if:
   - its distance from the world centre is at least the alt biome's minimum distance;
   - its edge count lies inside the alt biome's window (minimum inclusive, maximum exclusive);
   - its height is at least 30 m, which is the water level (all 32 alt biomes use a window of 30 m to 10,000 m);
   - it does not already carry an alt biome that is incompatible with this one, in either direction.

   The game's format also supports required or forbidden neighbouring biomes and world X/Y limits, but none of the 32 use them.
5. **Order and chance.** The game walks the biomes in the order Meadows, Swamp, Mountain, Black Forest, Plains, Ashlands, Deep North, Ocean, Mistlands, and within each biome the alt biomes in list order (the # column below). For each alt biome it shuffles that biome's sectors, with a shuffle seeded from the world seed, the biome and the alt biome's name, and goes through them. While fewer than the **minimum** count have been placed, every sector that passes the rules gets the alt biome. After that, each passing sector gets it with the alt biome's **chance**, until the **maximum** count is reached. An alt biome listed for several biomes shares one count across all of them. Because incompatibility is checked against what a sector already carries, alt biomes earlier in the list win conflicts.
6. **Report.** When fewer than the minimum could be placed, the game logs *Loading: Placed X/min-max of 'Name' altbiome.* Search `Player.log` (or the BepInEx log) for that line to see which alt biomes your map could not host.

The assignment is deterministic: the same maps and seed always give the same result.

> **New in BC 0.8.1:** In Valheim 1.0 this grid is not only for alt biomes. Every terrain chunk takes the biomes at its corners from it, so it also decides the terrain biomes that vegetation, spawns and terrain colour follow. Three 0.8.1 fixes therefore matter beyond alt biomes:
>
> - **In-game map edits** now reach the grid; see The cache file below.
> - **Expand World Size.** When Better Continents runs with the Expand World Size mod, a world with a radius under 10,500 m no longer crashes (EWS issue #26), and larger worlds now map alt-biome regions correctly across the whole world, and with them the terrain biomes that come from the same grid.
> - **Land beyond 10,500 m.** Past 10,500 m every grid point is ocean. On a Better Continents world with Map Edge Drop-off off, land continues there and took the ocean's region for its terrain biome, vegetation and spawns. It now gets a plain region of its real biome, without alt biomes.

The cache file

Valheim 1.0.7 and 1.0.12 cached the sampled points in `<save folder>/cache/<world name>_biomedatacache.bin` and reused them on later loads. **Since 1.0.15 the game no longer reads that file.** On every world load, on the server and on every client, it deletes the file and samples the grid again. The grid is therefore never stale across loads, and there is nothing to delete by hand.

> **New in BC 0.8.1: In-game map edits reach the grid.** The game builds the grid only when a world loads, but Better Continents' debug commands (`bc reload …` and the other map and setting changes in debug mode) change maps and settings live. With 0.8.0 the alt-biome regions and the biomes of terrain chunks kept the grid from before the edit until the world was loaded again. Better Continents 0.8.1 rebuilds the grid, the regions and the placement whenever they change, and only then resets the zones. The zone reset also clears each terrain chunk's stored corner regions.

The 32 alt biomes

Placement rules, in list order. *Count* is the minimum and maximum number of sectors per world. *Edge count* is inclusive. *Incompatible with* lists both directions, because the game checks both. ≈ *radius* is the radius of a round, smooth region with that edge count; a region with a ragged outline has more edge points than a round one of the same size.

#	Alt biome	Biomes	Min. distance (m)	Count	Chance	Edge count	≈ radius (m)	Incompatible with
0	Mushroom	Meadows, Black Forest	500	1-3	0.2	66-198	144-426	-
1	Lantern	all land biomes except Ashlands	500	3-5	0.2	66-198	144-426	-
2	Bones	Swamp, Plains, Mistlands	2000	1-3	0.2	66-198	144-426	Peaceful Meadows
3	Menhir	Meadows, Plains	750	1-3	0.2	33-198	74-426	Birch Meadows
4	Dark Meadows	Meadows	1900	2-5	0.5	66-298	144-638	Peaceful Meadows
5	Peaceful Meadows	Meadows	1000	1-2	0.2	99-298	214-638	Bones, Dark Meadows
6	Dandelion Meadows	Meadows	500	1-3	0.2	66-198	144-426	-
7	Raspberry Meadows	Meadows	500	1-3	0.2	66-198	144-426	-
8	Smalltree Meadows	Meadows	500	1-3	0.2	33-198	74-426	-
9	Birch Meadows	Meadows	500	1-3	0.2	66-198	144-426	Menhir
10	Troll Black Forest	Black Forest	750	1-3	0.2	66-198	144-426	-
11	Root Black Forest	Black Forest	2000	1-4	0.2	99-298	214-638	Rock Black Forest, Kalhygge Black Forest
12	Ruin Black Forest	Black Forest	500	1-5	0.2	33-198	74-426	-
13	Rock Black Forest	Black Forest	750	1-5	0.2	33-198	74-426	Root Black Forest, Pinetree Black Forest
14	Pinetree Black Forest	Black Forest	750	1-5	0.2	33-198	74-426	Rock Black Forest
15	Blueberry Black Forest	Black Forest	500	1-5	0.2	33-198	74-426	-
16	Hut Swamp	Swamp	1500	1-3	0.2	33-198	74-426	Bog Swamp
17	Bog Swamp	Swamp	1500	1-5	0.2	33-144	74-312	Hut Swamp
18	Bat Swamp	Swamp	2000	1-3	0.2	33-144	74-312	-
19	Abomination Swamp	Swamp	2000	1-3	0.2	66-144	144-312	-
20	Wolf Mountain	Mountain	2000	1-5	0.2	199-298	426-638	Drake Mountain, Fortress Mountain
21	Drake Mountain	Mountain	2000	1-3	0.2	199-298	426-638	Wolf Mountain, Fortress Mountain
22	Fortress Mountain	Mountain	2000	1-2	0.2	199-298	426-638	Wolf Mountain, Drake Mountain
23	Lox Plains	Plains	2000	0-1	0.2	99-298	214-638	Goblin Plains, Death Plains
24	Goblin Plains	Plains	2000	0-2	0.2	66-198	144-426	Lox Plains, Death Plains
25	Death Plains	Plains	1000	0-1	0.2	99-298	214-638	Lox Plains, Goblin Plains
26	Kalhygge Black Forest	Black Forest	500	1-2	0.2	20-79	47-174	Root Black Forest
27	Rockless Mistlands	Mistlands	2000	2-5	0.2	99-598	214-1275	-
28	Trees Mistlands	Mistlands	2000	1-5	0.2	59-298	129-638	-
29	Swords Mistlands	Mistlands	2000	1-3	0.2	59-198	129-426	-
30	Hare Mistlands	Mistlands	2000	1-3	0.2	59-198	129-426	-

#	Alt biome	Biomes	Min. distance (m)	Count	Chance	Edge count	≈ radius (m)	Incompatible with
31	BroodSwarm Mistlands	Mistlands	2000	1-3	0.2	59-198	129-426	-

What each one changes. Creatures, and added vegetation, are listed by prefab name. Removed vegetation is listed by the game's vegetation entry name, so where both lists mention the same prefab (as in *Rockless Mistlands*), the alt biome replaces vanilla's entry with its own at a different density. Numbers after an added location are its quantity. "Inactive entries" are present in the game data but cannot take effect.

#	Alt biome	What it changes
0	Mushroom	Adds vegetation Pickable_Mushroom
1	Lantern	Adds vegetation deepnorth_lantern_standing
2	Bones	Adds creatures Skeleton_Poison; adds vegetation LargeBone, LargeBone_half01, LargeBone_half02
3	Menhir	Adds creatures Skeleton, Skeleton_Mountains; adds vegetation Rock_7_meadows
4	Dark Meadows	Adds creatures Draugr; adds locations WoodVillage2 (15); removes locations WoodFarm1; removes weather Clear, LightRain; creature level-up chance x2. Inactive entries: Draugr_Elite (entry is for Swamp only)
5	Peaceful Meadows	Adds creatures Boar, Deer; removes creatures Greyling, Greydwarf, Skeleton, Draugr, Troll; adds vegetation FireFlies. Inactive entries: Deer_White (entry disabled)
6	Dandelion Meadows	Adds vegetation Pickable_Dandelion
7	Raspberry Meadows	Adds vegetation RaspberryBush
8	Smalltree Meadows	Adds creatures Neck; adds vegetation Beech_small1, Beech_small2, stubbe, Bush01, Beech1; removes vegetation entries beech1_meadows, birch1_meadows, birch2_meadows. Inactive entries: shrub_2 (entry disabled)
9	Birch Meadows	Adds creatures Deer; adds vegetation Birch1, Birch2, Beech1, Oak1; removes vegetation entries beech1_meadows
10	Troll Black Forest	Adds creatures Troll
11	Root Black Forest	Adds creatures TentaRoot_wild, Greydwarf_Elite; removes creatures Skeleton; adds vegetation Greydwarf_Root, Greydwarf_Surprise
12	Ruin Black Forest	Adds vegetation stone_wall_2x1_ruin, stone_wall_1x1_ruin, stone_wall_ruin, stone_wall_ruin_2, GhostSkull; adds locations StoneTowerRuins07_sunk (10), StoneTowerRuins08_sunk (10), StoneTowerRuins09_sunk (10), StoneTowerRuins10_sunk (10)
13	Rock Black Forest	Adds vegetation rock4_forest, Rock_3, Rock_4, FirTree_small, stubbe, FirTree; removes vegetation entries firtree_many_blackforest, Pinetree_01_blackforest, firtree_blackforest; removes locations TrollCave02; creature level-up chance x2
14	Pinetree Black Forest	Adds vegetation Pinetree_01; removes vegetation entries firtree_blackforest, firtree_many_blackforest, firtree_small_blackforest; creature level-up chance x2
15	Blueberry Black Forest	Adds vegetation BlueberryBush
16	Hut Swamp	Adds vegetation SwampTree1, SwampTree2, wooden_path, wood_pole_log_4_worn; removes vegetation entries swamptree1, swamptree2; adds locations SwampHut1_1 (50), SwampHut2_1 (50), SwampHut3_1 (50). Inactive entries: Wraith (never spawns: no biome area)
17	Bog Swamp	Adds creatures Abomination; adds vegetation StatueEvil, SwampTree2_log, FirTree_small_dead, SwampTree1, SwampTree2; removes vegetation entries swamptree1, swamptree2; removes locations InfestedTree01
18	Bat Swamp	Adds creatures Bat_Swamp
19	Abomination Swamp	Adds creatures Abomination
20	Wolf Mountain	Adds creatures Wolf; removes creatures Skeleton, Hatchling; adds vegetation FirTree; removes vegetation entries rock1_mountain, rock2_mountain; creature level-up chance x2

#	Alt biome	What it changes
21	Drake Mountain	Adds creatures Hatchling; removes creatures Wolf, Skeleton; adds vegetation rock3_mountain_1; removes vegetation entries firtree_mountain; creature level-up chance x2
22	Fortress Mountain	Adds creatures Skeleton_Mountains, StoneGolem; adds vegetation stone_wall_ruin, stone_wall_ruin_2, rock3_mountain_1; removes vegetation entries firtree_mountain; adds locations StoneTowerRuins05_leet (10); removes locations StoneTowerRuins05; creature level-up chance x3
23	Lox Plains	Adds creatures Lox; removes creatures Goblin; removes vegetation entries birch2_aut_heath; removes locations GoblinCamp2, StoneTower1, StoneTower3
24	Goblin Plains	Adds creatures Goblin; removes creatures Lox, Deathsquito; adds locations GoblinHut01 (30), GoblinHut02 (30), GoblinHut03 (20); creature level-up chance x2. Inactive entries: GoblinCamp2_1 (never placed: no biome area)
25	Death Plains	Adds creatures Deathsquito; removes creatures Lox, Goblin; removes vegetation entries birch2_aut_heath, heathrockpillar; adds locations TarPit1 (50), TarPit2 (20), TarPit3 (100); removes locations GoblinCamp2, StoneTower1, StoneTower3, StoneHenge1, StoneHenge2, StoneHenge3; creature level-up chance x2
26	Kalhygge Black Forest	Adds vegetation stubbe, Pinetree_01_Stub; removes vegetation entries firtree_many_blackforest, firtree_blackforest, Pinetree_01_blackforest, firtree_small_blackforest
27	Rockless Mistlands	Adds vegetation cliff_mistlands1, cliff_mistlands2, rock_mistlands1, YggaShoot_small1; removes vegetation entries cliff_mistlands1, cliff_mistlands2, rock_mistlands1
28	Trees Mistlands	Adds vegetation YggaShoot1, YggaShoot_small1, YggdrasilRoot
29	Swords Mistlands	Adds vegetation giant_sword1, giant_sword2, giant_helmet1, giant_helmet2
30	Hare Mistlands	Adds creatures Hare
31	BroodSwarm Mistlands	Adds creatures SeekerBrood

What this means for map authors

- **Islands and mid-sized patches host alt biomes.** Most alt biomes want a region with an edge count of roughly 66 to 200, which for a round region means a radius of about 150 to 425 m (about 30 to 80 px across on a 2048 px map). The Mountain alt biomes want larger regions, a radius of about 425 to 640 m. *Kalhygge Black Forest* wants small ones, about 45 to 175 m.
- **Huge regions get none.** A continent-sized, single Meadows region has an edge count far above every Meadows window, so it hosts no Meadows alt biomes at all. The edge count also includes the rim of every hole in a region: a lake painted as Ocean, or a patch of another biome inside it. A large region full of holes is "huge" too.
- **Regions around the centre get none.** Distance is measured from the mean of the edge points, not from the nearest point. A region that surrounds the world centre, such as a ring of Meadows around the spawn, has its mean edge position near the centre and fails every minimum distance (500 to 2,000 m).
- **Edges must sit above water.** A sector's height is the midpoint of its lowest and highest edge heights, and it must be at least 30 m. The biome map, not the coastline, decides where a sector ends. A land biome painted out into the sea therefore has underwater edge points that drag this down, and a low swamp whose edges sit below the waterline fails.
- **Ragged outlines and speckles cost you.** Noisy borders add edge points, which can push a region over the maximum. Stray pixels of another biome make tiny sectors of their own and add edge points to their surroundings. Soft, anti-aliased biome edges also snap to a third biome (see Biome map).
- **Ashlands, Deep North and Ocean are global.** Each is one sector for the whole world. Only *Lantern* lists Deep North, and the global Deep North sector passes its edge window (66 to 198) only if the whole Deep North is small.

- **Plan for the minimums.** Alt biomes with a minimum of 1 or more take the first qualifying sectors regardless of chance. If your map offers too few qualifying regions, the log shows the *Placed X/min-max* warning, which is harmless.
- **When the effects appear.** Added locations are placed when the world's locations are generated, at creation. Vegetation is placed when a zone is first generated, so zones that already exist keep what they had; the game's own `altbioms` command notes that modifiers only appear in unexplored zones. Creature, weather and level-up changes apply live. With Skip Default Locations on, the added locations are skipped along with all other default locations.
- **Checking the result** (cheat commands, so `devcommands` first): `biomeinfo` prints the sector you are standing in (edge size, centre, height range, distance, alt biomes), `altbioms` lists every sector that received alt biomes, and `findbiome <text>` pins the centres of sectors whose biome or alt biome matches the text, nearest first.

> **New in BC 0.8.1:** You no longer have to design your map around these rules. Plant the alt biomes you want where you want them (next section), and use the random-placement controls to loosen the rules on the rest of the map: for example a larger `Region Size Scale` for big hand-drawn regions, or `Mean Sector Height` for regions whose biome paint runs out into the sea. `bc ab info` shows why each alt biome did or did not place, and `bc ab here` how each one fared on the region you stand in.

Planting alt biomes with colours (BC 0.8.1)

> **New in BC 0.8.1:** This section is new.

Better Continents 0.8.1 lets a map author **plant** alt biomes with colours, the way the biome map plants biomes. A second, optional image, the **alt-biome map** (`altbiomemap.png`), is laid over the world exactly like the biome map. Its **legend** (`altbiomemap.txt`, beside the image) says which alt biomes each colour plants. Black and transparent pixels are unplanted: the game's own placement decides there. A line `Name: at x, z` plants the whole region under a world position instead of a painted area.

Every planted area becomes a region of its own and gets the alt biomes its colour names. The game's own random placement still runs on the land you did not plant, unless you switch it off (see Modes).

Setting up the alt-biome map

- Set `Altbiomemap File` in the config section `08 BetterContinents.AltBiomes`. When the Project Directory (`Directory`, section `00 BetterContinents.Debug`) is set, only a file named `altbiomemap.png` in that folder is used, as for every map.
- The legend is `<image name>.txt` beside the image. If it is missing, Better Continents writes it with the default palette below and short instructions.
- The image is square, of any size, and covers the same square as every other map: 21,000 m × 21,000 m centred on the world centre, with the top of the image north. Use PNG: a lossy format shifts colours.
- Like every map, it is baked into the world when the world is created, so it travels with the world, with presets and to clients. What is baked is the decoded map, not the PNG: colours are matched once, when the map is baked, and every server and client reads the same result. The alt-biome names are looked up when the world loads.
- It works with or without a biome map, so procedurally generated biomes can be planted too. It does not change the biome map: `biomemap.png` and `biomemap.txt` keep their meaning.
- Editing the image or the legend later changes nothing until you bake the map again in game, with `bc reload ab` or `bc ab fn` (see Reports and commands).

The legend

One instruction per line:

```
<alt biome>[ + <alt biome> ...]: <colour>     plant these alt biomes where the
                                              image has this colour
<alt biome>[ + <alt biome> ...]: at <x>, <z>  plant them on the whole region at
                                              world position x, z
none: <colour>                                a protected region: no alt biome,
                                              planted or random
```

Examples:

```
Dark Meadows: 2D4613                plant Dark Meadows where the image is #2D4613
Dark Meadows + Lantern: 0080C0      two alt biomes on one colour
Lantern: 0080C0                     ...the same colour on another line stacks the same way
*Mistlands: 7F3FBF                  every Mistlands alt biome that fits
!Dark Meadows: 7A8B9C               force it, even on a Black Forest region
none: C030F0                        keep this area free of alt biomes
Troll Black Forest: at 2750, -1210  the whole region under (2750, -1210)
Bat Swamp: @ 3728, 7088             short form
```

- **Names** are the game's internal alt-biome names (the names in the tables of this chapter), matched case-insensitively. A name that is not one of the 32 vanilla names is noted when the map is baked ("fine if another mod adds it"); a name the game does not have when the world loads is warned about and plants nothing.
- `*` is a wildcard: `*Mistlands` plants **every** alt biome whose name matches and that fits the land, subject to the content rules (see What planting does). `*Plains` plants Lox Plains only: Goblin Plains and Death Plains are incompatible with it and are refused.
- `+` stacks alt biomes on one colour. Listing the same colour on several lines does the same.
- `!Name` forces that name past the content rules (disabled, wrong base biome, incompatible), and makes the colour claim every base biome.
- `none` cannot be combined with names: the `none` is ignored, with a warning.
- **Colours** are `RRGGBB`, `#RRGGBB`, `RRGGBBAA`, `#RRGGBBAA`, `r,g,b` or `r,g,b,a` (decimal). An alpha component is accepted and ignored. Black (`000000`) is reserved for unplanted land and is refused.
- **Points** are `at x, z` or `@ x, z`: world coordinates in metres (x east, z north), with `.` as the decimal point.
- **Comments:** `#` starts a comment at the start of a line, or where it has whitespace on both sides (or ends the line), so `Dark Meadows: #2D4613` is still a colour.
- A colour within 40 RGB units of another legend colour is warned about: pixels between them could go either way.
- A legend holds at most 254 entries: distinct colours plus point lines.

Which pixels are planted

Pixels are matched once, when the map is baked (at world creation, and by `bc ab fn` and `bc reload ab`). Distances are Euclidean, over R, G and B.

Pixel	Result
alpha below 128	unplanted
within 20 RGB units of a legend colour, and nearer to it than to black	that legend line (the nearest colour wins; on a tie, the first in legend order)
black at least as near as the nearest legend colour	unplanted

Pixel	Result
within 20 of neither a legend colour nor black	unplanted; a warning lists the five most common such colours, each with the nearest legend colour and its distance

Then, at every world load, each 12 m grid point takes the result of the nearest pixel. Nothing is planted outside the image or beyond the sampled disc. A colour **claims** a point only if one of its alt biomes (that exists and is enabled) belongs to the point's base biome, or a name is forced, or the colour is none. Painted points that a colour does not claim stay unplanted and open to random placement, so painting past a biome edge is harmless: if you paint *Dark Meadows* roughly over an island, only the island's Meadows change, and its Black Forest and the Ocean around it are left alone.

The 20-unit tolerance absorbs small colour drift from image editors. The default palette keeps every pair of its colours more than twice that far apart, so a pixel can never match two of them.

Default palette

These are the 32 colours Better Continents writes into a new legend, one per vanilla alt biome. They are generated from Better Continents' own code (`palettes/palette.json` in its source repository), and grouped as the palette groups them, by the base biomes each alt biome plants on. *Plants on* is the alt biome's own biome setting in Valheim 1.0.

Every pair of alt-biome colours, and every alt-biome colour and every base-biome colour of the biome map legend (black and white included), is more than 2 × 20 RGB units apart. The closest pairs are Rock Black Forest and Trees Mistlands (52.4) and Abomination Swamp and Mistlands (54.6). The overlay therefore stays easy to tell apart from the biome map when you paint both as layers of one project file. The palette's ten base-biome colours are the biome map's, listed on the Biome map page. The palette file for paint programs and the printable chart hold the same colours; see Painting colour maps.

Meadows (6)

Swatch	Alt biome	Hex	R, G, B	Plants on
	Dark Meadows	2D4613	45, 70, 19	Meadows
	Peaceful Meadows	ADFFDA	173, 255, 218	Meadows
	Dandelion Meadows	E5C54B	229, 197, 75	Meadows
	Raspberry Meadows	C2185B	194, 24, 91	Meadows
	Smalltree Meadows	6EC03D	110, 192, 61	Meadows
	Birch Meadows	CCFFAC	204, 255, 172	Meadows

Black Forest (7)

Swatch	Alt biome	Hex	R, G, B	Plants on
	Troll Black Forest	2C7B76	44, 123, 118	Black Forest
	Root Black Forest	6F5E32	111, 94, 50	Black Forest
	Ruin Black Forest	9D6C4B	157, 108, 75	Black Forest
	Rock Black Forest	5A5264	90, 82, 100	Black Forest
	Pinetree Black Forest	004754	0, 71, 84	Black Forest
	Blueberry Black Forest	4A5CB6	74, 92, 182	Black Forest
	Kalhygge Black Forest	A9AE34	169, 174, 52	Black Forest

Swamp (4)

Swatch	Alt biome	Hex	R, G, B	Plants on
	Hut Swamp	B1332D	177, 51, 45	Swamp
	Bog Swamp	6E2143	110, 33, 67	Swamp

Swatch	Alt biome	Hex	R, G, B	Plants on
	Bat Swamp	382B41	56, 43, 65	Swamp
	Abomination Swamp	95B17E	149, 177, 126	Swamp

Mountain (3)

Swatch	Alt biome	Hex	R, G, B	Plants on
	Wolf Mountain	93C7BC	147, 199, 188	Mountain
	Drake Mountain	5AAAC2	90, 170, 194	Mountain
	Fortress Mountain	B697AF	182, 151, 175	Mountain

Plains (3)

Swatch	Alt biome	Hex	R, G, B	Plants on
	Lox Plains	CC605F	204, 96, 95	Plains
	Goblin Plains	FF7622	255, 118, 34	Plains
	Death Plains	671E07	103, 30, 7	Plains

Mistlands (5)

Swatch	Alt biome	Hex	R, G, B	Plants on
	Rockless Mistlands	D99FE8	217, 159, 232	Mistlands
	Trees Mistlands	472577	71, 37, 119	Mistlands
	Swords Mistlands	8A7FDB	138, 127, 219	Mistlands
	Hare Mistlands	D56EBB	213, 110, 187	Mistlands
	BroodSwarm Mistlands	8E2F8E	142, 47, 142	Mistlands

Several base biomes (4)

Swatch	Alt biome	Hex	R, G, B	Plants on
	Mushroom	FF969C	255, 150, 156	Meadows, Black Forest
	Lantern	F2A300	242, 163, 0	Meadows, Black Forest, Swamp, Mountain, Plains, Mistlands, Deep North
	Bones	F8E1B6	248, 225, 182	Swamp, Plains, Mistlands
	Menhir	DDA776	221, 167, 118	Meadows, Plains

- No vanilla alt biome changes the biome name shown in game, so a planted region still says, for example, "Meadows". Players notice it through what grows, spawns and gets placed there. See the 32 alt biomes for what each one changes.
- Nothing targets Ashlands or Ocean, and *Lantern* is the only alt biome for Deep North.

What planting does

- **Planted areas become regions of their own, never merged.** Each 4-connected patch of one colour inside one of the game's regions becomes a region of its own. Two patches of one colour in the same game region are two regions, and a patch never joins a neighbouring region. On Ashlands, Deep North and Ocean, which the game treats as one world-wide region each, all patches of one colour form **one** region. What is left of a game region after its patches are taken out stays one region, measured again over what is left.
- **Random placement elsewhere is unchanged.** While the game places alt biomes at random, the planted regions are hidden from its lists, so the alt biomes you did not plant land where they would have landed without the planting, except in the regions the planting touched and where the quota rule below applies.

- **Point lines split nothing.** A line `Name: at x, z` applies to the whole region under the position: a planted region, what is left of a game region, or, on Ashlands, Deep North and Ocean, the whole unplanted world-wide region.
- **Planted alt biomes count toward the game's minimum and maximum.** Planting happens first, and the game counts every region an alt biome already has when it decides whether to place more (see the table below). Planting itself is not capped: plant three Fortress Mountain regions and all three get it; the game then places none.
- **Planting ignores the game's occurrence rules:** region size, distance from the centre, average height, world position bounds, neighbour rules and chance. You have chosen the place.
- **Planting keeps the game's three content rules**, because breaking them is almost always a mistake: an alt biome the game has disabled is not planted; an alt biome is only planted on the base biomes it belongs to (its colour does not even claim other base biomes); and an alt biome that is incompatible with one already on the region is not planted, first come first served in legend order. The disabled and incompatible cases are logged as warnings. `!Name` overrides all three for that name.

The quota rule with the game's own numbers (from the 32 alt biomes): the game's random placement runs while *planted* + *placed* is below the maximum, and ignores the chance while it is below the minimum.

Planted	Fortress Mountain (1-2)	Lox Plains (0-1)	Dark Meadows (2-5)
0	at least 1, at most 2 random	at most 1 random	at least 2, at most 5 random
1	at most 1 more random	none	at least 1, at most 4 more random
2	none	none	at most 3 more random
3	none (all 3 planted)	none	at most 2 more random

"At least" holds only where enough regions pass the game's tests. `Amount Multiplier` and the `min` and `max` overrides change these numbers, and planted regions count against the changed ones. An alt biome of several base biomes (*Lantern*, 3-5) counts all of them together. On Ashlands, Deep North and Ocean one colour is one region, and counts once.

When planting fails

Zones generated with the wrong alt biomes are permanent, so a **planting error stops the world load** with a clear message instead of carrying on without the planting. An error is an alt-biome map in the world's settings that cannot be read, or any failure while sampling the map, splitting the regions or applying the planted alt biomes.

- A dedicated server logs the error and quits (exit code 1) without saving the world. A host logs out without saving, and a client disconnects.
- In mode `Off` nothing is planted, so such a world still loads.
- Content problems are not errors: an unknown name, a disabled or incompatible alt biome, or a colour that matches no legend line is logged as a warning and simply not planted.
- The world carries its own baked copy of the map, so editing the image or the legend cannot repair a world whose stored map is damaged. Restore the world's Better Continents settings file from a backup (the previous save's copy ends in `.old`). Any other failure is a bug to report, with the log.
- During a live edit in debug mode, a planting error keeps the previous regions and placement instead.

Multiplayer

The alt-biome options and the baked alt-biome map travel to clients inside the world's Better Continents settings, like every other map. Each client builds its own grid and regions from them. The server then sends its **placement**, which region has which alt biomes, and the client applies it over its own, so every region both machines agree on carries the server's alt biomes, random ones included.

Both sides compute two hashes, one of the region grid and one of the placement. The client logs whether they match the server's and reports its hashes back, and the server logs the result for each client. A difference is a warning, never a kick: on a client whose grid differs, the regions that still match get the server's alt biomes and the rest get none.

Modes

Set with `Mode` in the config (for new worlds), or with `bc ab mode` in game:

Mode	Planted regions	Game's random placement
`Random` (default)	planted	on unplanted land, under the world's options
`PlantedOnly`	planted	skipped
`Off`	nothing; the map is not even sampled	skipped: no alt biome anywhere

A none region is protected in every mode: nothing is planted on it, and random placement stays off it. `Off` also clears alt biomes already assigned, and an unreadable alt-biome map does not stop the load in that mode. Without alt biomes, the locations they add, such as the wood villages of *Dark Meadows*, have nowhere to go.

Controls for random placement

The settings in `08 BetterContinents.AltBiomes` are defaults for **new** worlds. When a world is created they are baked into its settings, like the maps, and they are never read from the config again for that world. The world owner changes them in game with the `bc ab` commands, which save with the world. A world whose settings hold no alt-biome options, which includes every world made before 0.8.1, behaves as with 0.8.0: mode `Random`, grid `Vanilla`, the world seed, no multipliers and no overrides.

These settings steer **only the game's random placement**; planted regions ignore them.

Setting	Console	Default	Effect
`Fixed Seed`	`bc ab seed [value]`, `bc ab reroll [seed]`	empty	The seed for the game's random placement. Empty or `world` is the world seed (vanilla). A whole number is used as is; any other text is hashed like a world seed name. The same map then gets the same random layout whatever the world seed. `bc ab reroll` sets a new fixed seed: a random one, or the one given.
`Chance Multiplier`	`bc ab chance [0-10]`	`1`	Multiplies every alt biome's chance (the result is capped at 1).
`Amount Multiplier`	`bc ab amount [0-10]`	`1`	Multiplies every alt biome's minimum and maximum count, rounded to whole numbers.
`Region Size Scale`	`bc ab regionscale [0.1-50]`	`1`	Multiplies every alt biome's edge-count window. The game only gives alt biomes to regions roughly 0.1 to 2.4 km across; big hand-drawn regions usually need 2 to 10.
`Distance Scale`	`bc ab distancescale [0-10]`	`1`	Multiplies every alt biome's minimum distance from the centre, and its world position bounds.
`Min Sector Thickness`	`bc ab thickness [0-20]`	`0`	Regions thinner than this (area divided by edge count, in 12 m cells) never get a random alt biome. 0 is vanilla; 2 filters out the slivers an anti-aliased biome map leaves along its borders.
`Mean Sector Height`	`bc ab meanheight [true|false]`	`false`	Measures a region's height as the mean over the whole region, instead of the game's midpoint between the lowest and highest edge heights. Helps maps whose biome paint runs into the sea, where the edge is under water and the game's measure sinks below the 30 m that every alt biome requires.

Setting	Console	Default	Effect
`Fix Neighbour Check`	`bc ab neighbourfix [true|false]`	`false`	Uses a corrected required/forbidden-neighbour test. The game's is broken: any required neighbour makes every region fail, and the forbidden-neighbour test looks for the wrong biome except for Meadows and Swamp. No vanilla alt biome uses it; alt biomes from other mods may.
`Overrides`	`bc ab set`, `bc ab clear`, `bc ab overrides`	empty	Per-alt-biome overrides of the random placement; see below.

`Min Sector Thickness`, `Mean Sector Height` and `Fix Neighbour Check` switch the eligibility test to Better Continents' copy of the game's test, with the change; with all three off, the game's own test runs. With every one of these controls at its default, random placement is exactly the game's.

Overrides use the syntax `Name: key=value, key=value; Other Name: key=value`, in the config and in `bc ab set <name|pattern|*> <field> <value>`, which sets one field (`default` clears it). `bc ab clear [name|pattern|*]` clears one entry's overrides, or all of them without a name, and `bc ab overrides` prints them.

Key	Value	Replaces the alt biome's
`enabled`	`true`, `false`, `1`, `0`	enabled flag (random placement only)
`chance`	0 to 1	chance
`min`, `max`	0 to 10000	minimum and maximum count
`mindist`	0 to 1000000 (m)	minimum distance from the centre
`minedge`, `maxedge`	0 to 100000000 (cells)	edge-count window
`minheight`, `maxheight`	-100000 to 100000 (m)	height window
`ignorebounds`	`true`, `false`	world position bounds (`true` switches them off)

- Values out of range are clamped. An empty value or `default` clears the field.
- A name may contain `*` wildcards, and `*` alone applies to every alt biome. Names are compared case-insensitively.
- Precedence, field by field: the exact name, then the matching patterns (more literal characters first, then in ordinal order), then `*`.
- An override replaces the multiplied value for its field: `chance=0.5` is 0.5 whatever `Chance Multiplier` says.
- If the resulting maximum is below the minimum, the maximum is raised to the minimum. A disabled alt biome gets minimum 0, so the game does not warn that it placed too few.
- Overrides never touch planted regions: `Fortress Mountain: enabled=false` stops the game placing Fortress Mountain at random, and planted Fortress Mountain still works.

Examples: `Fortress Mountain: enabled=false`, `*Mistlands: chance=0.5; Hare Mistlands: max=1`, `*: minedge=0, maxedge=100000`.

One more setting changes the region grid itself, so it applies to planted and random alt biomes alike: `Grid` (`bc ab grid [WorldEdge|Vanilla]`, default `WorldEdge`). With `WorldEdge`, when the edge of the world (World Size + Edge Size) is inside 10,500 m and Map Edge Drop-off is on, grid points beyond the edge are marked as outside-the-world ocean, so alt biomes, and the location candidates the game picks from the grid, cannot land beyond the edge. `Vanilla` always samples the 10,500 m disc. `Grid` has no effect when Expand World Size owns the grid.

Reports and commands

When a world loads, Better Continents writes an alt-biome summary to the log. It names the mode, the placement seed and the grid, counts the regions and those with alt biomes (planted and random), and gives the grid and placement hashes. It then lists what each legend line planted, one line per base biome, the biomes absent from the map, and, for each alt biome, why it did or did not place (with "+N planted (counted toward the maximum)" where planting counts). The game's own `biomeinfo`, `altbioms` and `findbiome` commands read the same regions.

The `bc ab` commands are part of Better Continents' `bc` command: a cheat command (`devcommands`, or Better Continents' *Debug Mode*) that runs on the machine that hosts the world. `bc ab help` lists them. Edits change the loaded world's settings and are saved with the world. They redo only as much of the grid, regions and placement as they affect, and then reset the zones; connected clients keep their placement until they reconnect. A value command without a value prints the current one.

Command	What it does
`bc ab info`	A summary of this world's alt biomes: why each did or did not place, what each legend line planted, and up to 40 planted regions.
`bc ab list [filter]`	Up to 60 regions with alt biomes. The filter is `planted`, `random`, `all`, a biome name, or part of an alt-biome name.
`bc ab here`	The region you stand in, what was planted on it, and how each alt biome of its biome fared.
`bc ab show [filter]`, `bc ab hide`	Map pins on every region with an alt biome (optionally filtered by alt-biome name), and removing them.
`bc ab export`	Writes `altbiomes-<time>.png` and a `.txt` report to `<save folder>/BetterContinents/<world name>/`. The image shows the region grid, north up, with alt-biome regions tinted in their alt biome's colour, planted regions striped magenta and region borders darkened.
`bc ab hash`	This machine's grid and placement hashes.
`bc ab names [filter]`	The game's alt biomes, with their default colours and random-placement rules.
`bc ab rebuild`	Rebuilds the grid, regions and placement from the current settings.
`bc ab fn [path]`	Sets the alt-biome map (a full path, a directory or a file name) and bakes it with its legend. Clearing the field in the Better Continents debug menu (Alt+F8) removes it.
`bc reload ab`	Re-reads the alt-biome map and its legend from their files and bakes them again. `bc reload all` includes it.
`bc ab mode [Random|PlantedOnly|Off]`	Sets the mode.
`bc ab grid [WorldEdge|Vanilla]`	Sets the grid.

The commands for the random-placement controls are in the table above.

For every player, on a client or on a host, there is a separate command:

Command	What it does
`bc_altbiomes`	The hashes and whether they agree with the server's, and the region you stand in.
`bc_altbiomes here`	The region you stand in, in full.
`bc_altbiomes names [filter]`	The alt-biome names and their default colours. This works on the main menu too.
`bc_altbiomes hash`	The hashes and whether they agree with the server's.
`bc_altbiomes list [filter]`	Up to 200 regions with alt biomes, with the same filters as `bc ab list`. It reveals where they are, so on a client it needs `devcommands`, like the game's own `altbioms`.

As with every change in game, zones that were already generated keep what they had unless they are reset; see Settings.

Limits

- A legend holds at most 254 entries (distinct colours plus point lines). Images can be up to 16384 × 16384.
- The grid is 12 m: a patch narrower than a cell or two can vanish or break into several regions. Paint patches at least a few cells wide.
- Only the sampled disc has regions: 10,500 m, the edge of the world with `Grid` set to `WorldEdge`, or Expand World Size's radius. Planting beyond it does nothing.
- Ashlands, Deep North and Ocean are one region per colour: two Deep North areas painted with the same colour are one region, and count once toward the maximum. Use two colours to make two regions.
- Planting chooses alt biomes, not terrain or base biomes.
- Zones the game has already generated keep the vegetation and locations they got. Plant before a world is explored.

Compatibility

- **Vanilla worlds**, without Better Continents settings, behave exactly as before. The only 0.8.1 patch that acts on them is the grid fix for Expand World Size, and only on a grid that Expand World Size has resized.
- **Existing Better Continents worlds** keep the same regions and the same random alt biomes as with 0.8.0, and their settings are saved byte for byte as 0.8.0 saves them. What does change for them are the 0.8.1 fixes: Deep North weather on worlds with a biome map, in-game edits in debug mode (see The cache file), land beyond 10,500 m on worlds with Map Edge Drop-off off, and locations that accept several biomes.
- **Worlds that use an alt-biome feature** (an alt-biome map, or any option that differs from the 0.8.0 behaviour) need 0.8.1 or later. Better Continents 0.8.0 stops reading the world's settings at the first key it does not know and loads the world *without* Better Continents: it leaves the settings file alone, but zones generated in that session get vanilla terrain. A new world whose World Size + Edge Size is under 10,500 m counts as using a feature, because `Grid` defaults to `WorldEdge`. In multiplayer this cannot happen by accident, because server and clients must run the same Better Continents version.

8 Export and Import

> **New in BC 0.9.0:** This page is new in this edition, and all of its text is edition text. Export, import, the export HUD, config that applies while the game runs, and Biome precision are all new in Better Continents 0.9.0; none of it existed in this edition's earlier chapters.

Since 0.9.0, Better Continents can turn the world you are standing in back into a set of maps, and turn a folder of maps — an export, or one you painted by hand — into a choice in the New World screen. Between them they cover two jobs the rest of this guide does not: taking a copy of a world you already have, and loading a finished set of maps without editing your config file by hand.

Exporting the world you are in

`bc_export`, typed into the console (**F5**), writes the loaded world's heightmap, biome map, location map, forest, heat, alt-biome, lava, moss and paint maps into `<your save data>/BetterContinents/<world name>/export-<date and time>/`, together with:

- `export.cfg` — the Better Continents settings that rebuild the world from those maps,
- `README.txt` — the ways to make a new world from the export, written for someone who has never done it,
- `manifest.json` — the same numbers as machine-readable JSON,

and, unless you turn it off, a New World preset named after the world and the time, ready to pick the next time you create a world.

`bc_export` is not a cheat command: it works for any player, subject to your server's **Allow Export** setting. Options — a size in pixels, the Heightmap Amount and Sea Level to encode heights for, which maps to include, and more — can be given on the command line (`bc_export help` lists them) or in the **export window**: press **F7** in a loaded world to open it, or **F9** for a small status box. Both are off until you turn on **Hud** under `[09 BetterContinents.Export]`, in the config or in BepInEx Configuration Manager. On a server, the host's **Hud** and **Allow Export** settings apply to every connected client too.

> **An export made by a client only knows the locations the server has shown that player on the map so far**, so its location map is left incomplete on purpose (the game is left to place the rest). Export from the host, or from the dedicated server's own console, for a complete location map.

Importing an export

`bc_import` (also not a cheat command, and it works from the main menu as well as in a world) turns a folder back into something the New World screen can build from:

- `bc_import` on its own takes the newest finished export of the world you are in; from the main menu, or if that world has none, it falls back to your last export this session and then your last-played world's newest export. It builds a New World preset and selects it.
- `bc_import list` numbers every export you have, newest first; `bc_import <number>`, `bc_import <world name>` and `bc_import <folder>` each pick one a different way.
- Adding `config` (for example `bc_import 2 config`) copies the folder's settings into `BepInEx/config/BetterContinents.cfg` instead — your old file is kept beside it — and selects **From Config**, so every world you create afterwards reads that folder's maps as they are *then*. This suits a folder of maps you are still editing; a preset is simpler once you are done.

The export window's Import tab has the same two choices, as the buttons **Make preset** and **Use as config**.

> **New in BC 0.9.4:** There is one more way, with no console and no preset: set `[00 BetterContinents.Debug] Directory` to the export folder and create a New World with **From Config**. Better Continents then lays the folder's `export.cfg` over `BetterContinents.cfg` for that world, as an import does, without changing either file; `export.cfg`'s settings win, so edit or delete it to use values of your own. This applies after `bc_import … config` too, which also points **Directory** at the folder: change such a setting in `export.cfg`, not in `BetterContinents.cfg`. Before 0.9.4 a world loaded through **Directory** alone took only the maps and kept the config's default Heightmap Amount of 1, which drowned an export's heightmap (stored for Amount 2) almost entirely. See Project.

> **Importing, like editing any map, only changes what the *next* New World is built from.** The world you are standing in keeps the maps it was created with.

Config that applies while the game runs

`[09 BetterContinents.Export]` is the one group of settings that takes effect immediately, including on a client whose server changes it. Better Continents 0.9.0 also watches `BetterContinents.cfg` itself and re-reads it whenever it changes on disk, not only once when the game launches. World-generation settings (Heightmap Amount and the rest) still only matter for a world at the moment it is created, but you no longer have to quit and relaunch the game after editing the file: save your edit, then create the next world.

Biome precision

`[03 BetterContinents.Biomemap] Biome precision` (console `bc b p`, 0 to 5) works again from Better Continents 0.9.0: see Biome map for what it does.

Joining a Better Continents world: the download, and how to shorten it

A player who joins a Better Continents world receives its settings and image maps from the host or the dedicated server before the join finishes; their game caches them, so the transfer happens once per world revision. Valheim pins every Steam connection to about 150 KB/s, so a detailed world (tens of megabytes) can take over a minute to arrive. Better Continents 0.9.0 adds two ways round that:

- `[07 BetterContinents.Misc] Settings Transfer Rate` — `Vanilla`, `KB256`, `KB384`, `KB512` (the default), `KB768`, `MB1`, `MB1_5`, `MB3` or `Unlimited` (100 MB/s). The sending machine sets Steam's send rate for that one connection to the value for the transfer only, then restores Valheim's own. Steam sends at exactly the rate set, with no congestion control, and the transfer itself moves about 4 MB/s at most: an 11.8 MB world took 78 s at `Vanilla`, 23 s at `KB512` and 3 s at `Unlimited` on a local dedicated server. Only the server's (or host's) value counts; a client's has no effect, and a PlayFab (crossplay) connection cannot be changed at all. The log records the rate used and the transfer's size, time and speed.
- `bc_cache` — `bc_cache export`, on the machine that runs the world, writes its settings as a `<world>-<id>.bcworld` file (with a `.txt` note beside it) in `BetterContinents/<world>/`; a player runs `bc_cache import <file or folder>` in the main menu, or drops the file into `BepInEx/config/BetterContinents/seed/`, and joins with no download at all. Better Continents also imports every `.bcworld` it finds under `BepInEx/plugins/` when it starts, so a mod pack holding nothing but that file pre-seeds every player who installs it. `bc_cache list` shows the cache; an import never overwrites an entry, and the id is always recomputed from the file's content.

The full walkthrough

This page is the short version. `BetterContinents-Export-Guide.pdf`, included in the same package as this guide, is an illustrated, step-by-step walkthrough of exporting and importing, written for players new to Better Continents, with every console form, every file the export writes, and what to do when something goes wrong.

Appendix A

Changes in this edition

> **Updated for Valheim 1.0 / BC 0.8.0:** This appendix is new in this edition. It lists every substantive change made to the original guide, first for the BC 0.9.4 update, then the BC 0.9.1 update, then the BC 0.9.0 update, then the BC 0.8.1 update, and finally, page by page, for the Valheim 1.0.15 / BC 0.8.0 update. Each change is also marked in place, with a *New in BC 0.9.4*, a *New in BC 0.9.0*, a *New in BC 0.8.1* or an *Updated for Valheim 1.0 / BC 0.8.0* box.

BC 0.9.4 update (2026-10-02)

- **A world export loaded through Directory brings its own settings.** When a new world is created with **From Config** and `[00 BetterContinents.Debug] Directory` points at a folder that holds an `export.cfg`, Better Continents 0.9.4 lays that `export.cfg` over `BetterContinents.cfg` for the world, the way an import does. Its settings win; `Directory` stays as the config has it, so a moved or copied export still loads; nothing is written to either file; and the log lists every setting that differs from the config. A folder without `export.cfg` works as before. Before 0.9.4 such a world kept the config's own values: the default Heightmap Amount of 1 left an export's heightmap (stored for Amount 2) almost all under water, and the default forest, location and alt-biome settings gave the wrong forest density, a second set of locations and extra random alt biomes. In Project, Export and Import and the FAQ.
- The edition gains the *New in BC 0.9.4* box, drawn like the *New in BC 0.9.0* box. About this edition explains it.

BC 0.9.1 update (2026-09-25)

- Better Continents was rebuilt and re-verified for Valheim 1.0.16. Nothing this guide describes changed in the game or in the mod.
- The edition now names the game as **Valheim 1.0** and the mod as **0.9.x** wherever it states what it covers, so a patch release of either does not need a new guide. The edition boxes are labelled *Updated for Valheim 1.0 / BC 0.8.0* (they were *Updated for Valheim 1.0.15 / BC 0.8.0*); their content is unchanged.

BC 0.9.0 update (2026-09-24)

World export and import

- New chapter Export and Import: `bc_export` writes the loaded world to a folder of maps (heightmap, biome, location, forest, heat, alt-biome, lava, moss and paint maps, plus `export.cfg`, `README.txt` and `manifest.json`); `bc_import` (or a New World preset the export makes automatically) turns such a folder back into a world, either as a preset in the New World dropdown or by copying its settings into `BetterContinents.cfg` (**From Config**).
- A separate, illustrated `BetterContinents-Export-Guide.pdf`, included in the same package as this guide, walks a newcomer through both. Export and Import is this guide's own short summary and points to it.
- An in-game **export HUD** (a status box on **F9**, a window with Export and Import tabs on **F7**), turned on by `[09 BetterContinents.Export] Hud`; a server's **Hud** and **Allow Export** settings apply to its connected clients too.

Config that applies while the game runs

- `BetterContinents.cfg` is now watched and re-read whenever it changes on disk, not only once when the game launches. A New World's own settings (Heightmap Amount and the rest) still only matter for a world at the moment it is created, but an edit to the file reaches the next world you create in the same session, with no restart. In Export and Import.

Joining a world: transfer rate and the shareable cache

- `[07 BetterContinents.Misc] Settings Transfer Rate` (`Vanilla`, `KB256`, `KB384`, `KB512` (the default), `KB768`, `MB1`, `MB1_5`, `MB3`, `Unlimited`): the fixed send rate a host or dedicated server sets on a joining player's connection for the settings download, for that transfer only. Valheim's own rate is about 150 KB/s; Steam has no congestion control, so it sends at exactly the rate set. Only the sending machine's value counts. In Export and Import and Settings.
- `bc_cache export`, `bc_cache import <file or folder>` and `bc_cache list`: a world's settings as a shareable `.bcworld` file that a player imports before joining, so the join skips the download; a `.bcworld` under `BepInEx/plugins/` or in `BepInEx/config/BetterContinents/seed/` is imported automatically when the game starts. In Export and Import.

Biome precision

- **Biome precision works again** (`[03 BetterContinents.Biomemap] Biome precision`, console `bc b p`, 0 to 5): from 0 (vanilla: a 64 m terrain zone reads the biome map only at its four corners) to 5 (a corner every 11 m), it sets how closely ground texture, grass, vegetation and spawn points follow your biome map inside the zone. It never changes terrain height, and it never changes how locations or alt biomes are placed, which still use vanilla's four-corner, 12 m rules. In Biome map and Export and Import.

BC 0.8.1 update (2026-09-22)

Maintenance, install and licence

- Wubarrk now maintains Better Continents: the About page, Introduction, Setup Guide and title page give the Hexium page as the install source and github.com/RGlabs84/BetterContinents10, where each release is tagged, as the source code. The stale references to pull request #9 and to Thunderstore releases were removed.
- The edition now covers BC 0.8.1. *New in BC 0.8.1* boxes mark what 0.8.1 adds or fixes; what the edition says about 0.8.0 also holds for 0.8.1 unless such a box says otherwise. The Quick Start's example of the in-game banner now shows v0.8.1.
- The companion mods now match the Better Continents README: Server Devcommands, Upgrade World, Infinity Hammer and TortalPortal, with the README's links (Introduction, Quick Start and Setup Guide).
- The License page lists this update as a second modification.

Planting alt biomes (Alt Biomes chapter)

- The planned-feature note became the section *Planting alt biomes with colours*: setting up the alt-biome map, the legend, which pixels are planted, the default palette, what planting does (with the quota rule, what happens when planting fails, and multiplayer), the three modes, the controls for random placement with the per-alt-biome overrides and the *Grid* setting, reports and commands (with `bc_altbiomes` for every player), limits, and compatibility.
- Notes about planting and the new controls in the chapter's introduction and in *What this means for map authors*.

- The alt-biome map, its config section `08 BetterContinents.AltBiomes` and its commands were added to the Introduction, Quick Start, Image maps, Project and Settings.

Colour tables and palette

- The default alt-biome palette (32 colours, grouped by base biome, each with the base biomes it plants on) and the Biome map colour table are generated from Better Continents' palette file, `palettes/palette.json`. The Biome map table now uses the names of the legend file; the original table's colour chips are shown in Other images.
- New Quick Start section *Painting colour maps*: the palette file `BetterContinents.gpl` and the printable chart `altbiome-palette.png` (in the release package and the repository's `palettes/` folder), importing the palette in GIMP and Krita, anti-aliasing off, and exporting without resampling or colour conversion.

The 0.8.1 fixes

- **Expand World Size:** a world smaller than 10,500 m no longer crashes (EWS issue #26), and larger worlds map alt-biome regions correctly. In Global and the Alt Biomes chapter.
- **In-game map edits:** map and setting changes in debug mode (`bc reload …` and the other `bc` edits) now reach the alt-biome regions and the biomes of terrain chunks, which kept the grid from before the edit until the world was loaded again. In The cache file, and noted in Settings (console), Image maps, Biome map and the FAQ.
- **Deep North weather:** the game tested the camera's height instead of the north–south position, so Deep North weather showed at sea in the wrong places on maps with Deep North across the middle. On BC worlds with a biome map it now follows the map, as Ashlands weather already does. In Biome map.
- **Land beyond 10,500 m:** on worlds with Map Edge Drop-off off, land past 10,500 m no longer takes the ocean's biome for its terrain, vegetation and spawns. In Global and the Alt Biomes chapter.
- **Locations that accept several biomes** no longer search the wrong biome, or one the map lacks. In Biome map.
- Guards the game's biome data cache with a fingerprint, so a cache built for other settings is never reused. Valheim 1.0.15 itself no longer reads that cache.

Corrections to earlier edition text

- **Valheim 1.0.15 keeps no stale biome grid.** The earlier text described the biome cache of older Valheim builds (1.0.7 and 1.0.12). Valheim 1.0.15 deletes the cache file and rebuilds the grid on every world load, on the server and on every client, so the advice to delete the cache file by hand is removed. In The cache file, and in the notes in Settings, Image maps, Biome map and the FAQ.
- **World Size and Edge Size do not stretch the maps.** On a Better Continents world the image maps always cover the square from −10,500 m to +10,500 m; the World Size setting only moves the edge-of-the-world mechanics. Corrected in Global, Image maps, the FAQ and Heightmap.
- **Incompatible alt biomes.** The *Incompatible with* column of the alt-biome table listed an incompatibility only for the alt biome that declares it. It now lists both directions, because the game checks both.
- **Low regions.** A region fails the height rule when the midpoint of its edge heights is below 30 m; at exactly 30 m it passes.
- **Missing console animations.** The two animations that the original pages reference but that were never in the docs repository are no longer marked where they would appear; the references are removed (Location map, Spawn map and Vegetation map), and Other images says so.

Valheim 1.0.15 / BC 0.8.0 update (2026-09-22)

Whole guide

- Console commands updated from `bc param <group> <setting>` to `bc <group> <setting>`, and renamed groups and subcommands corrected: `fo ad` → `fo add`, the location map `s` → `l`, the spawn map `sm` → `spawn`, the vegetation map `vm` → `vegetation`. Commands that no longer exist are marked (`g ma`, `g oc`, `f fn`, `f bl`, all of `ri`).
- The console animations are captioned as recordings of an older version.
- New pages: About this edition, License, Height Layers, Alt Biomes, this appendix, Other images, and the full text of the GNU General Public License, version 3 as the final appendix.
- The guide is licensed under GPL-3.0. This edition is a modified version by Wubarrk (2026-09-22), under the same license. Its Markdown source and build script are attached to the PDF (see License).

Introduction

- Sharing a 1.0 world means copying its folder, which holds the extension-less `BetterContinents` file. Version matching between server and clients explained.
- The Flatmap is legacy. Mountains Amount and the ridge settings are gone, replaced by Height Layers. Continent Size only affects the height layers. Where the PNG export command is. New settings and alt biomes pointed to. Links to the Hexium page, the source repository and the companion mods.

Quick Start

- New section *Creating a world with your own maps*: the 1.0.15 workflow, covering the project folder, when the config is read (at launch), the **From Config** preset dropdown, the ENABLED banner, the inspection commands, iterating (maps are baked in, zones reset with Upgrade World), sharing, and presets.
- Built-in presets for worlds without image maps. The template's "spawnmap" is today's location map. Biome colours snap to the nearest legend colour.

Setup Guide

- Installing from the Hexium page (Wubarrk now maintains Better Continents), and the source code link. The companion mods that the Better Continents README recommends (Server Devcommands adds tab completion; Upgrade World resets zones).
- Dedicated server: the 1.0 world folder layout and the extension-less settings file; a dedicated server cannot create a BC world; pre-1.0 worlds are upgraded (old file kept as `.BetterContinents.pre10`); save operations are not yet play-tested.
- Settings are sent to clients and cached; mismatched versions are refused.

FAQ

- `worlds_local` and world folders. BC's log prefix. Images only need to be square (power of two no longer enforced); map scale and orientation.
- New questions: a drowned world, edited images not changing the world, and BC showing DISABLED.

Image maps

- Every map covers the whole square world, top is north, maps are baked at creation, legend files, config sections, and `bc reload`.

Heightmap

- Map scale corrected to 21 km (about 5.1 m per pixel at 4096). 8-bit precision at the default Amount.
- Creation hints corrected: sea level can be calculated; the #0d0d0d observation is outdated; the old test settings are no longer needed; rivers and lakes must be carved; keep Meadows central; the centre cap; sanity-checking a map.
- New section *Height scale and the waterline*: the height formula, the waterline at 0.30 / Amount, 140 m ceiling, table of values, the 0.15 mistake, Sea Level's effect, and authoring for Amount 1.
- Heightmap Amount is the ceiling and is read at launch. Blend works as a multiplier in the new height function.
- New settings documented: Heightmap Mask, Heightmap Override All, Heightmap Alpha (no effect yet).

Flatmap

- Marked as legacy: no config, console command or project file in 0.8.0; replaced by Height Layers.

Roughmap

- Ignored while Heightmap Override All is on. Config section.

Biome map

- Legend file format and default contents. Only the ten vanilla biome names are accepted, so Expand World Data custom biomes can no longer be mapped. Nearest-colour snapping, with a soft coastline becoming a Mistlands fringe. Deep North behaviour follows the map (not yet play-tested). Omitting a biome no longer hangs world creation. Radial layout advice and a link to Alt Biomes. The unshown biome key image added. Biome precision is disabled.

Terrain map, Heat map, Paint map, Lava map, Moss map

- Config names and sections, project file names, console commands, legend files. Terrain colours match exactly.
- Heat map: *heat* > *0* means Ashlands, so heat must be exactly 0 elsewhere on land; a sea ramp is fine; the fallback to the biome map without a heat map; Heatmap Scale (range, and 0 disables).
- Paint map: `paintmap.txt` syntax.

Forest

- Forest Scale's real config default (1) and range (0 to 10), the curve on which 0.5 is vanilla, and values above about 1.15 breaking it.
- Forest Amount 0.5 is neutral. The minimap statement corrected (vanilla overlay only in Meadows, Plains and Black Forest). Which prefabs *Forest Factor Overrides All Trees* affects.
- New section *Recommended forest map settings*: Multiply 0, Add 1, so that a higher value means more trees.

Location map

- The unshown location colour chart added, with its two colours that differ from `locationmap.txt` and the two entries it lacks. Legend syntax. Skip Default Locations (name, section, alt biome locations). The start temple. `bc locs`, `bosses`, `show` and `hide` (and the `hide` gotcha). The legacy spawnmap migration.

Spawn map and Vegetation map

- Legend semantics as implemented: `none`, `+name` enables, `-name` disables, a bare name only exempts from `none`, wildcards, comments, and pure white. The first two spawn map examples corrected. The vegetation legend is `vegetationmap.txt`, not `spawnmap.txt`. Vegetation examples clarified (FirTree is the fir). Raid spawns unaffected.
- The `Spawnmap File` config trap (migrated to Locationmap File when Locationmap File is empty).

Settings

- The Sea Level example's numbers (±200 m, 20 m per 0.05). When the config is read. The **From Config** dropdown and presets.
- Config file name and section table.
- The console opens with F5; `bc` is a cheat command (`devcommands`, `confirmcheats`) that runs on the host only; the syntax; true/false; every change regenerates and resets zones; changes are saved with the world.
- New sections: a complete console command reference (with the four recordings the site never showed), and the in-game settings window.

Global

- What applies to new worlds (BC's height function only replaces vanilla's with a heightmap or height layers).
- Enabled only matters with From Config. Continent Size only scales height layers, inversely. Mountains Amount removed. Sea Level: new formula and waterline. Ocean Channels has no effect on new worlds and no console command. Rivers bypassed by heightmaps. Mountains Allowed At Center caps heightmaps near the centre. Booleans are true/false.
- New settings documented: World Size, Edge Size, Ashlands Gap, Deep North Gap, Skip Default Locations, Fix Water Color (no effect yet).

Project

- The setting's config section, file-name lookup from the console, and the complete 0.8.0 file-name list (flatmap.png no longer loaded; spawnmap.png is now the creature spawn map).

Ridges

- Marked as removed in 0.8.0, replaced by the Height Layers' *Ridges* preset.

Start Position

- Coordinates are metres, Y is north–south. Config section. Console commands and their misleading 0-to-1 help text.

Debug

- What Debug Mode does in 0.8.0. Skip Default Locations' new name and section, and that it also skips alt biome locations. New settings documented: Debug Reset Command and Override version.

Minor corrections (not marked in place)

- Start Position X: the range typo `'0500` corrected to `10500`.
- Setup Guide: the broken link `setup.html` corrected to the Client section of the Setup Guide.

Appendix B

Other images

Updated for Valheim 1.0 / BC 0.8.0: This appendix is new in this edition. The original docs repository holds 54 images, all byte-identical to those on the live site. Ten of them are not displayed by any page of the site. This edition shows six of those where they belong:

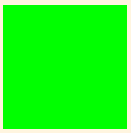
- `console/bc-help.gif`, `console/bc-info.gif`, `console/bc-clouds.gif` and `console/bc-mapds.gif`, in the console command reference;
- `maps/biome-colors.png`, on the Biome map page;
- `spawnmap-ref.png`, on the Location map page.

The remaining four are plain 64 × 64 swatches, shown here for completeness: black, grey, white and the Meadows green.


`black.png`


`gray.png`

`white.png`


`meadows.png`

The Biome map page's colour table now shows swatches generated from Better Continents' palette file. The original table's colour chips (`biomes/*.png`) are shown here, with the names and values the original table gave them:

Chip	Original name	Value
	Ocean	`#0000FF`
	Meadows	`#00FF00`
	Black Forest	`#007F00`
	Swamp	`#7F7F00`
	Mountains	`#FFFFFF`
	Plains	`#FFFF00`
	Mistlands	`#7F7F7F`
	Deep North	`#00FFFF`
	Ash Lands	`#FF0000`
	Default	`#000000`

Two images that the original pages reference, `console/bc-param-s-fn.gif` (Location map and Spawn map) and `console/bc-param-v-fn.gif` (Vegetation map), are not in the repository and return "not found" on the live site. This edition leaves those references out.

Appendix C

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