

Grid Cartographer 4 User Manual

Version 4.0.4

Copyright © 2013 - 2017 David Walters Development.

All Rights Reserved.

Table of Contents

Chapter 1 Introduction	6
1.1 Welcome to Grid Cartographer.....	7
Chapter 2 Exporting Data	8
Introduction	9
2.1 Export to XML	9
Element Hierarchy.....	9
Element Reference.....	10
2.2 Tile Data Models.....	19
Common Elements.....	19
Square Grid.....	19
Hex 'H' Grid.....	19
Hex 'V' Grid.....	20
2.3 Data Tables.....	20
Edge Table	20
Marker Table	22
Terrain Table	26
2.4 Mesh Exporter	28
Export Options	28
Materials / Sub-meshes	29
Chapter 3 Game Link.....	34
Introduction	35
3.1 Compatible Clients	35
3.2 Split-screen Mode.....	35
3.3 Game Link over LAN.....	36
Compatible Game Configurations	37
Remote Play Setup	40
Lagging Updates?	40

Table of Figures

Chapter 1 Introduction	6
Chapter 2 Exporting Data	8
Figure 2.1. Square Grid Data Model.....	19
Figure 2.2. Hex 'H' Grid Data Model.....	19
Figure 2.3. Hex 'V' Grid Data Model.....	20
Chapter 3 Game Link.....	34

Chapter 1 Introduction

1.1 Welcome to Grid Cartographer	7
--	---

1.1 Welcome to Grid Cartographer

Hello this section, like the rest of this manual is still being written. This PDF file is provided as it may be useful. As more of it is written, updates will be published.

Thanks for your patience while this work is completed!

Chapter 2 Exporting Data

Introduction	9
2.1 Export to XML	9
Element Hierarchy	9
Element Reference	10
2.2 Tile Data Models	19
Common Elements	19
Square Grid	19
Hex 'H' Grid	19
Hex 'V' Grid	20
2.3 Data Tables	20
Edge Table	20
Marker Table	22
Terrain Table	26
2.4 Mesh Exporter	28
Export Options	28
Materials / Sub-meshes	29

Introduction

Grid Cartographer can export maps to other file formats for use in game development and visualization applications.

The export commands can be found in the *File* menu on the *Export Data* page. Export data features are only available in the Professional Edition of the software.

2.1 Export to XML

Use the *Export Map As XML* button on the *Export Data* page to begin the export process. A file selector will open, choose the destination and file name and click *OK*. The export process will then begin and once complete you will be notified of success or failure with a message box.

Element Hierarchy

The file format of the XML data uses the following elements in this hierarchy. Not all elements will be present depending on the map you are exporting.

```
<map>
|--- <export>
|--- <region>
|   |--- <name>
|   |--- <setup>
|   \--- <floor>
|       |--- <name>
|       \--- <tiles>
|           |--- <bounds>
|           \--- <row>
|               \--- <t>
|                   <notes>
|                       |--- <note>
|                       \--- <label>
|--- <tilemap>
|   |--- <name>
|   |--- <setup>
|   |--- <mapsize>
|   \--- <plane>
|       |--- <name>
|       |--- <tiles>
```

```

|           |      \--- <row>
|           |           \--- <c>
|           \--- <notes>
|           |--- <note>
|           \--- <label>
|--- <custom>
|   |--- <monochrome>
|   |   \--- <tile>
|   |       \--- <name>
|   \--- <color>
|       \--- <tile>
|           \--- <name>
\--- <palette>
      \--- <entry>

```

Element Reference

<map>

This is the root container element of the document.

<export>

Records the date, time and version number of Grid Cartographer used when the document was exported. It has the following attributes:

Attribute	Meaning
from	The friendly version number of Grid Cartographer used to export the document. This takes the form v#.##.
build	The build number of Grid Cartographer used to export the document. This is guaranteed to increase with each version of the software and can be used for comparisons.
date	The date of export in YYYY-MM-DD format.
time	The (local) time of export in HH:MM:SS format.

<region>

This is the container element for a standard map region. Multiple standard regions and tilemaps are supported by the editor within one map file. Each region has the following attributes:

Attribute	Meaning
floors	The floor count of this region. Excluding ground floor if disabled.
lowest_floor	The index of the lowest floor. Negative values are basements.
grid_shape	The shape of the grid used for all floors in this region. The value can be one of: square, hexh or hexv.

<tilemap>

This is the container element for a tilemap. Multiple standard regions and tilemaps are supported by the editor within one map file. Each tilemap element has the following attributes:

Attribute	Meaning
planes	The number of planes in this tilemap.
lowest_plane	The index of the lowest plane in the stack. Plane indices start at 1.
grid_shape	The shape of the tilemap grid. Reserved for future expansion - this value will always be: square.

<name>

The name of the region or tilemap (UTF-8 encoded) is stored in a child CDATA element.

<setup>

Provides information about the map setup. It has the following attributes:

Attribute	Meaning
origin	Either t1 or b1 which, respectively, specify either a top-left or bottom-left grid origin.

<mapsize>

Defines the size of all planes in a tilemap.

Attribute	Meaning
width	The number of tiles in each row.
height	The number of rows.

Note: This element is not present on a standard region, see <bounds> below to determine the size of a floor in a region.

<floor>

A floor in the region. Contains the tiles and notes you've created.

Attribute	Meaning
index	The number of the floor. Negative values are basements, zero is the ground floor and positive values are the floors above.

Note: A completely empty floor will not be exported. Take care to use the index attribute to correctly identify a floor.

<plane>

A plane in the tiles. Contains the tiles and notes you've created.

Attribute	Meaning
index	The index of the plane. Plane indices start at 1.

Note: Even a completely empty plane will still be exported (unlike <floor> elements).

<name>

If the floor or plane name has been changed, this element stores its name (UTF-8 encoded) in a child CDATA element.

<tiles>

Container for tiles on this floor/plane. Floors, if no tiles are present, will omit this element. Planes will always include this element.

<bounds>

Defines the maximum bound of tiles on this floor. This element is not included for tile map planes, see <mapsize>.

Attribute	Meaning
x0	The x co-ordinate of the left-most occupied tile.
y0	The y co-ordinate of the top or bottom most occupied tile as defined by the co-ordinate space specified by the origin attribute of the <setup> element.
width	The number of tiles in each row.
height	The number of rows from y0 to the last occupied row on this floor.

<row>

Contains one row on this floor or tile map plane. If this row is part of a floor then it will be omitted if it contains no tiles. Tile map rows are always exported.

Attribute	Meaning
y	The y co-ordinate of the row in the co-ordinate space specified by the origin attribute of the <setup> element.

<t>

Attribute	Meaning
m	A standard marker is present. See the marker table section below for the full list of supported icons.
msub	Marker sub-data. This is only present for some marker types. See the corresponding marker table entry for further information.
mcm	A custom monochrome marker is present. This is a value from 0 to 65000 corresponding to the index of the custom tile used in the monochrome list. See the <custom> element below for more information.

Attribute	Meaning
mcc	A custom color marker is present. This is a value from 0 to 65000 corresponding to the index of the custom tile used in the color list. See the <custom> element section below for more information.
mc	The color of the marker layer. This is a palette index from 0 to 255. See the <palette> element section below for more information. Note that color custom markers are not tinted and should ignore this value.
t	A standard terrain type is present. See the terrain table in the section below for the full list of supported terrain types.
tcm	A custom monochrome terrain is present. This is a value from 0 to 65000 corresponding to the index of the custom tile used in the monochrome list. See the <custom> element below for more information.
tcc	A custom color terrain is present. This is a value from 0 to 65000 corresponding to the index of the custom tile used in the color list. See the <custom> element section below for more information.
tc	The color of the terrain layer. This is a palette index from 0 to 255. See the <palette> element section below for more information. Note that color custom terrain is not tinted and should ignore this value.
r	The style of the R edge of this tile. See the edge table in section below for the full list. Also see the tile data model section for the location of the R edge for the grid shape used.
i	The style of the I edge of this tile. See the edge table in section below for the full list. Also see the tile data model section for the location of the I edge for the grid shape used.
b	The style of the B edge of this tile. See the edge table in section below for the full list. Also see the tile data model section for the location of the B edge for the grid shape used.
rc	The color of the R edge. This is a palette index from 0 to 255. See the <palette> element section below for more information. See the tile data models in the following section for the location of the R edge for the grid shape used.

Attribute	Meaning
ic	The color of the I edge. This is a palette index from 0 to 255. See the <palette> element section below for more information. See the tile data models in the following section for the location of the I edge for the grid shape used.
bc	The color of the B edge. This is a palette index from 0 to 255. See the <palette> element section below for more information. See the tile data models in the following section for the location of the B edge for the grid shape used.
d	If set to 1 this signifies the tile is 'dark'.
fx	A value composed from characters r, g and/or b that specify which of the three colored FX flags have been assigned to this tile. Multiple characters can be present and assigned to the tile.
c	If set to 1 this signifies the tile has a ceiling.
sp	<p>A string of characters that indicate special attribute flags assigned to this tile. Multiple characters can be present and will always appear in the sequence below. Meanings are:</p> <p>h Tile is horizontally flipped (custom tiles only)</p> <p>v Tile is vertically flipped (custom tiles only)</p>

<C>

A single tilemap cell. These are present under <plane> elements. Note: All attributes are optional and if not present are assumed to be zero (unless otherwise specified).

Attribute	Meaning
i	The index of the custom tile used by this cell. A value from 0 to 65000. Only color custom tiles can be used with tilemaps. This attribute will be omitted for empty cells and the cell can be interpreted as having an empty or default appearance if required.
sp	A string of characters that indicate special attribute flags assigned to this tile. Multiple characters can be present and will always appear in the sequence below. Meanings are: h Tile is horizontally flipped (custom tiles only) v Tile is vertically flipped (custom tiles only)

<notes>

Container element for notes and labels on this floor. If no notes or labels were created this element will be omitted.

<note>

Multiple note entries can be added to each map floor/plane. If multiple notes are assigned to a single tile location, they will remain as separate entities. This element represents one of those notes.

Notes are not stored in any particular order, even those assigned to the same location may not be grouped together in the exported XML document.

Attribute	Meaning
x	The X co-ordinate of the note.
y	The Y co-ordinate of the note given in the co-ordinate space specified by the origin attribute of the <setup> element.

The text itself is stored in a child CDATA element of the <note> element.

<label>

Multiple label entries can be added to each map floor/plane, but only one label is permitted at each tile location. Labels are not stored in any particular order. The label text itself is stored as a child CDATA element of the <label> element.

Attribute	Meaning
x	The X co-ordinate of the label.
y	The Y co-ordinate of the label given in the co-ordinate space specified by the origin attribute of the <setup> element.
halign	The horizontal alignment mode of the label. One of left, center or right. If this attribute is omitted centered alignment should be used.
valign	The vertical alignment mode of the label. One of top, middle or bottom. If this attribute is omitted middle alignment should be used.
c	The text color of the label. A palette index from 0 to 255.

<custom>

Container element for custom tile information. If no custom tiles have been added to the map then this element is omitted.

<monochrome>

Additional information about monochrome custom tiles is stored within this element. If there aren't any custom tiles of this type then the element is omitted.

<color>

Additional information about color custom tiles is stored within this element. If there aren't any custom tiles of this type then the element is omitted.

<tile>

Describes a single custom tile added to the map.

Attribute	Meaning
index	The index number of the custom tile. See the <t> element above which references this value with its mcm, mcc, tcm or tcc attributes.
width	The width, in pixels, of the custom tile image.
height	The height, in pixels, of the custom tile image.
unused	If set to 1 this signifies that the custom tile is available but is not current used on any of the map floors.

The name of the custom tile is stored as a child CDATA element. The default name for a custom tile is the file name of the imported image (with extension)

<palette>

Container element for palette entries used by this map. This element is always present.

<entry>

Describes a color palette entry.

Attribute	Meaning
i	The index of the color. This will be a value from 1 to 255. Index 0 is the default color and, being based on the current theme, has no fixed RGB value (nor can it be edited).
rgb	The color value of the entry expressed in HTML notation #RRGGBB
edit	If set to 1 this indicates a color that has been edited.

2.2 Tile Data Models

Map grids are represented internally using a data model dependent on the shape of the grid. Below are diagrams of how data fields of standard region types in exported data relate to the map displayed in the editor.

Common Elements

Each tile holds the following common fields regardless of the shape of the grid:

- *Flags* which specify which of the field effect colors (red, green or blue), darkness and/or ceiling attributes have been applied to the tile.
- *Marker Layer* which specifies the marker used in this tile. See the marker table in the next section.
- *Terrain Layer* which specified the terrain style used in the tile. See terrain table in the next section.

Square Grid

The square grid model also specifies a right and a bottom edge for the tile. To make a full square requires additional tiles to the left and above this one.

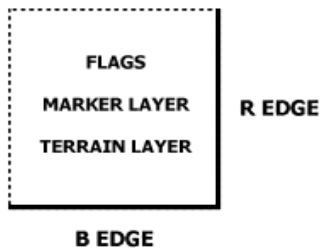


FIGURE 2.1. SQUARE GRID DATA MODEL.

Hex 'H' Grid

Hexagon grids introduce the 'I' (intermediate) edge. For the horizontal type this specifies an additional edge on the right side.

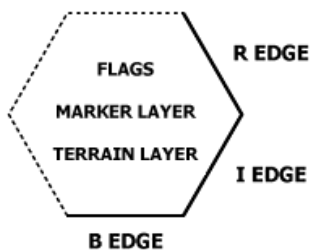


FIGURE 2.2. HEX 'H' GRID DATA MODEL.

Hex 'V' Grid

In vertical hexagon grids the intermediate edge specifies an additional bottom edge.

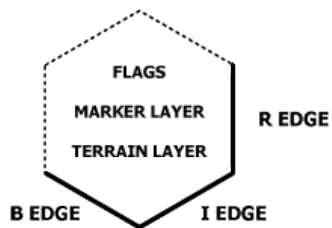


FIGURE 2.3. HEX 'V' GRID DATA MODEL

2.3 Data Tables

Edge Table

This is a list of edge styles sorted by their code value.

Value	Edge Style
0	None / empty
1	Wall
2	Standard door (capacitor style)
3	Locked door
4	Hidden door
5	One-way door (exiting left or up)
6	One-way hidden door (exiting left or up)
7	One-way wall (exiting left or up)
8	One-way door (exiting right or down)
9	One-way hidden door (exiting right or down)
10	One-way wall (exiting right or down)
12	Empty door frame

Value	Edge Style
13	Secret wall
14	Trapped door
15	Half door (left side)
16	Half door (right side)
17	Half wall (left side)
18	Half wall (right side)
19	Button (facing left or up)
20	Button (facing right or down)
21	Torch (facing left or up)
22	Torch (facing right or down)
23	Lever (facing left or up)
24	Lever (facing right or down)
25	Bars
26	Torch (double sided)
27	Gate / portcullis
28	Message / rune wall
29	Secret Door
30	Niche (facing left or up)
31	Niche (facing right or down)
32	Keyhole wall
33	Standard door (box style)

Marker Table

This is a list of markers sorted by their code value.

Value	Marker
0	None / empty
1	Stairs Up
2	Stairs Down
3	NPC
4	Teleport In
5	Teleport Out
6	Rotating Room
7	Pit (Open)
8	Death
9	Start
10	Exit
11	Turntable
12	Treasure chest (open)
13	Key
14	Monster
15	Switch
16	Fountain
17	Save point
18	Target
19	Pressure

Value	Marker
20	Pentagram
21	Elevator
22	Zap!
23	Unknown
24	Event
25	Message
26	Ladder up
27	Ladder down
28	Block edge (horizontal). The msub attribute specifies the edge style. See the Edge Table above.
29	Block edge (vertical). The msub attribute specifies the edge style. See the Edge Table above.
42	Block edge (diagonal left '\'). The msub attribute specifies the edge style. See the Edge Table above.
43	Block edge (diagonal right '/'). The msub attribute specifies the edge style. See the Edge Table above.
44	Ladder (two ways)
46	Treasure chest (closed)
47	Treasure chest (trapped)
48	Treasure chest (locked)
49	Ore
50	Pit (covered)
51	Pit (trapped)
52	Well

Value	Marker
53	Triangle
54	Small square
55	Square
56	Small circle
57	Circle
58	Diamond
59	Emerald
60	Ruby
61	Crystal
62	Arrow up
63	Arrow right
64	Arrow down
65	Arrow left
66	Sack
67	Map
68	Purse
69	Barrel
70	Ramp up
71	Ramp down
72	Boulder
73	Stone
74	Pressure plate + stone

Value	Marker
78	Arrow left and right
79	Arrow up and down
80	Arrow diagonally up and left
81	Arrow diagonally up and right
82	Arrow diagonally down and right
83	Arrow diagonally down and left
97	Tree
98	Shop
99	Bed
100	Tavern
101	Health
102	Moveable block
103	Trainer
104	Skull
105	Bones
106	Boat
107	Bridge
108	Signpost
109	Pillar
110	Armor
111	Grave
112	Statue

Terrain Table

Below is a list of terrain types sorted by their code value.

Value	Terrain
0	None / empty
30	Custom tile (monochrome)
31	Inside (open)
32	Outside (open)
33	Water (open)
34	Lava (open)
35	Rock (open)
36	Vegetation (open)
37	Block (walled)
38	Ooze (open)
39	Simple Block (open)
40	Sand (open)
41	Wood (open)
45	Custom tile (color)
75	Metal (open)
76	Trees (open)
77	Corridor
84	Inside (walled)
85	Lava (walled)
86	Metal (walled)

Value	Terrain
87	Ooze (walled)
88	Outside (walled)
89	Rock (walled)
90	Sand (walled)
91	Trees (walled)
92	Vegetation (walled)
93	Water (walled)
94	Wood (walled)
95	Snow (open)
96	Snow (walled)
113	Mountain (open)
114	Mountain (walled)
115	Track (open)
116	Track (walled)

2.4 Mesh Exporter

The floors of your map can be exported as simple 3D meshes. This can be useful, for example, when blocking-out environments for game development. Meshes are exported to standard Wavefront .obj format and are compatible with most 3D editors as well as the Unity and Unreal Engine game engines.

To export a mesh, switch to the main editor and navigate to the floor. Then select the *File* tab, *Export Data* menu and click the *Export Floor as Mesh* button. This will open a standard file selector and begin the export process. Watch the status bar to see export progress and when complete you will be prompted with a confirmation message box.

Export Options

The exported mesh can be configured using a number of options provided on the *Export Data* menu.

Compatibility

Select from three target modes to apply specific compatibility options to the exported mesh. These options are purely to make importing into other applications more convenient, they do not represent significant changes and can be changed further using import options on the target side.

3D Editor: Export using the standard 'right handed' co-ordinate system used by many popular 3D editing packages. In this system the x-axis points to the right, y-axis points up and the z-axis points towards the viewer. Note: Blender's default import settings for .obj files applies the correct adjustments to convert into its z-up co-ordinate system.

Unity: Export using Unity compatible co-ordinate system (x-axis to the right, y-axis is up and z-axis is forward/away). In this mode a single square tile is 1 unit in size.

Unreal Engine: Export using the Unreal Engine editor co-ordinate system (x-axis is right, y-axis towards and z-axis is up). It also applies a 100x scale to convert from centimeters to meters.

Geometry Adjustment

Offset Mesh by Floor Height: By default the mesh is exported with the bottom of the mesh at 0 units and the top at 1 unit. If the option is enabled, the mesh is moved up or down by the number of units corresponding to the number of the floor or basement being exported. This allows multiple floors to be combined in one scene without having to adjust the individual origin points.

Double Sided Edge Polygons: When enabled the polygons used to create edge geometry are duplicated so the edge appears solid from both sides. When disabled only one polygon is created per-edge, you will need to render with face culling disabled to see the edges from both sides. This option may be helpful when exporting the map for use as collision geometry.

Materials / Sub-meshes

The mesh exporter provides several options to control the naming of materials and the subsequent creation of sub-meshes in the exported model. The options are:

Create Materials / Sub-meshes: This is the master control for material naming. If enabled the other check-boxes will also become available for fine-tuning. If disabled, the mesh will be exported as a single piece with one material named `default` applied to every polygon.

One per- Color Tint: Append `_col#` to the material names of all edges and floor tiles that use a color tint. If disabled then all color will be ignored. The `#` value ranges from 1 to 255.

One per- Edge Style: If enabled, append the style of edge to the material name used (see below for the full list). For example a locked door will use the prefix `gc_edge_locked`. If the option is disabled then all edges will use the same `gc_edge` prefix for their material name.

One per- Terrain Type: If enabled, the specific type of terrain will be used to create the material name (see below for the full list). For example a lava tile will be assigned `gc_floor_lava`. If disabled then all terrain types will use the material name `gc_floor`.

Note that ceilings will always use the prefix `gc_ceil` (unless *Create Materials / Sub-meshes* is disabled). If the 'one per-color tint' option is enabled the colour of the terrain (if not default) will be used to create the `_col#` suffix.

Edge Style Material Suffixes

The right hand column gives the text appended to the material name when the '*One per-Edge Style*' option is enabled.

Edge Style	Material Suffix
Plain wall	wall
Standard door	door
Locked door	locked
Hidden door	hidden
One-way door (facing left or up)	oneway_door_lu
One-way hidden door (left/up)	oneway_hidden_lu
One-way wall (left/up)	oneway_wall_lu
One-way door (facing right or down)	oneway_door_rd

Edge Style	Material Suffix
One-way hidden door (right/down)	oneway_hidden_rd
One-way wall (right/down)	oneway_wall_rd
Empty frame	frame
Secret wall	secret_wall
Trapped door	door_trapped
Half-door (left side)	door_half_left
Half-door (right side)	door_half_right
Half-wall (left side)	wall_half_left
Half-wall (right side)	wall_half_right
Button wall (facing left or up)	btn_lu
Button wall (facing right or down)	btn_rd
Torch wall (facing left or up)	torch_lu
Torch wall (facing right or down)	torch_rd
Lever (facing left or up)	lever_lu
Lever (facing right or down)	lever_rd
Bars	bars
Double-sided torch wall	torch_pair
Gate	gate
Message wall	rune
Secret door	secret_door
Niche (facing left or up)	niche_lu
Niche (facing right or down)	niche_rd

Edge Style	Material Suffix
Keyhole wall	keyhole
Door (box style)	door_box
Corner curve	wall_corner

Terrain Type Material Suffixes

The right hand column gives the text appended to the material name when the '*One per-Terrain Type*' option is enabled.

Terrain Type	Material Suffix
Block or simple block	block
Inside	inside
Outside	outside
Water	water
Lava	lava
Mountain	mountain
Rock	rock
Trees	trees
Vegetation	veg
Sand	sand
Snow	snow
Track	track
Wood	wood
Ooze	ooze

Terrain Type	Material Suffix
Metal	metal

Chapter 3 Game Link

Introduction	35
3.1 Compatible Clients	35
3.2 Split-screen Mode	35
3.3 Game Link over LAN	36
Compatible Game Configurations	37
Remote Play Setup	40
Lagging Updates?	40

Introduction

Game Link allows Grid Cartographer to automatically synchronise the avatar marker with the player's position, orientation and map area within a compatible game (typically running on an emulator). Having the marker shown on screen and automatically moving around makes drawing your own maps much easier (compared to 'counting steps' manually).

3.1 Compatible Clients

Game Link is currently only compatible with games running on DOS emulator 'DOSBox'. Due to the additional changes needed to add the required functionality, a modified version called 'Custom DOSBox' is required to use Game Link. Standard 'DOSBox' releases are not compatible.

Custom DOSBox is available from the Grid Cartographer download page here:

<http://www.davidwaltersdevelopment.com/tools/gridcart/download.php>

3.2 Split-screen Mode

Game Link also provides the ability to stream video from the game (using a bespoke protocol) into an interactive split-screen view within Grid Cartographer. This feature streamlines the mapping process by removing the need to task switch between the game and the software, or use a second monitor or computer.

Setup Instructions for Custom DOSBox

1. Replace any existing DOSBox installation that came with the game with Custom DOSBox. The download provides a drop-in replacement for the DOSBOX folder used by the classic game distributions available today.
2. You have three options to run the game in split-screen within Grid Cartographer:
 - Update the shortcut for the game to run `dosbox_gameLink.exe`
 - Add `-gameLink` to the shortcut for the game (or using the launch options dialog).
 - Edit the `dosbox.conf` file and change the line beginning `output=` to `output=gameLink`.
3. Start the game. The DOSBox window should open and stay on the DOSBox logo.
4. Start Grid Cartographer (if it is not already running!)
5. If everything is working correctly, and you are playing a supported game, a message box should appear either offering to change the editor layout to split screen view, or offering to setup a compatible map for you. Follow the on-screen prompts to continue.
6. Once the game is running, you can (by default) click on the game view and interact with the game. Press `Ctrl+F10` to unlock input again. See the Options Menu chapter for information on configuring Game Link split-screen mode further.

3.3 Game Link over LAN

Game Link can be used in a limited capacity over a local area network (LAN). In this mode only player tracking is supported, split screen video is not supported. Only 'Custom DOSBox' is supported in this mode.

Setup Instructions for Custom DOSBox

1. By default, Game Link over LAN is disabled. To enable this feature click the *Activate* button on the *Game Link* page of the *Options* menu.
2. Ensure that the game is running Custom DOSBox. The download provides a drop-in replacement for the DOSBOX folder used by typical classic game distributions.
3. Find and open the DOSBox configuration file `dosbox.conf` for the game. If there is more than one `.conf` file (there may also be a suffix to the filename depending on the installer used, e.g. `dosboxMM2.conf`), open the largest one.

Note: Custom DOSBox comes with a copy of a default `dosbox.conf` in the DOSBOX folder but this may not be the one your game is configured to use. If you encounter a problem, please try a different `.conf` file.

4. Find the game in the following section and copy the code starting `[netpeek]` into the `.conf` file. A good place to put it is just above the `[dos]` section near the top.
5. Start the game and start Grid Cartographer.
6. If things are working, and data is being received from Custom DOSBox, the icon in the bottom-right of the interface will show a red exclamation mark. This means that the map in the editor is not configured to be compatible with the requirements of the game.

Simply click the icon and you will be given the choice to create one. Alternatively, if you have a map from a previous session already saved, ignore the icon and load the map!

If the icon stays as a series of yellow animated squares running in a circle then Grid Cartographer is not receiving the Game Link data from Custom DOSBox. This could be because you're not using Custom DOSBox, that the `[netpeek]` data is wrong or that it was added to the wrong file. Please double check your settings and the steps above.

7. Once a compatible map has been created or loaded, the icon should change to either a green question mark (meaning Game Link is working, but Grid Cartographer doesn't know where the player is right now. This is usually because you're in the main menu and haven't started the game yet, or in a non-map area like a shop.

A green tick means Grid Cartographer is tracking the player. The avatar marker should match the position and facing of the player in game.

8. Enjoy!

Compatible Game Configurations

When you've located the game in the list below, copy the contents of all text into the Custom DOSBox configuration file.

Eye of the Beholder

Version 1.7 / GOG.com edition:

```
[netpeek]
enabled=true
rate=100
targethost=localhost
port=49000
head=EOB1
bytes=328cc 328ca 328cb 328c8
foot=XXXE
```

Version 1.4:

```
[netpeek]
enabled=true
rate=100
targethost=localhost
port=49000
head=EOB1
bytes=328ac 328aa 328ab 328a8
foot=XXXE
```

Forgotten Realms: Unlimited Adventures

```
[netpeek]
enabled=true
rate=100
targethost=localhost
port=49000
head=FRUA
bytes=3fd74 3fd75 3fd76 415cc 5b2d3 5b2d2 5b346 5b347 5b348 5b349 5b34a 5b34b 5b34c
5b34d 5b34e 5b34f 5b350 5b351 5b352 5b353 5b354
foot=ADND
```

NOTE: The line starting bytes should have no line break when copying into the dosbox.conf file. The next line after bytes should start foot.

Might and Magic: Secret of the Inner Sanctum

```
[netpeek]
enabled=true
rate=100
targethost=localhost
port=49000
head=MMB1
bytes=15e08 15e09 15e0d 1eb10
foot=XXXXA
```

Might and Magic II

```
[netpeek]
enabled=true
rate=100
targethost=localhost
port=49000
head=DB01
bytes=10ac3 10ac4 10aff 10ac2
foot=XXXXA
```

NOTE: This game must be run using the command line: `loadfix -4 mm2.exe`

Might and Magic III

```
[netpeek]
enabled=true
rate=100
targethost=localhost
port=49000
head=M&M3
bytes=28ec5 28ec6 28ec4 28ec7
foot=ISLE
```

Pool of Radiance

Version 1.3 / GOG.com edition

```
[netpeek]
enabled=true
rate=100
targethost=localhost
port=49000
head=POR1
bytes=14c8d 14c8e 14c8f 332ca 33f64 332c6 332c8 3330c
foot=G1BX
```

Wizardry: Proving Grounds of the Mad Overlord

“The Ultimate Wizardry Archives” edition:

```
[netpeek]
enabled=true
rate=100
targethost=localhost
port=49000
head=WIZ1
bytes=d9c6 d9c4 d9c0 d9c2
foot=XXXXA
```

Wizardry II: The Knight of Diamonds

“The Ultimate Wizardry Archives” edition:

```
[netpeek]
enabled=true
rate=100
targethost=localhost
port=49000
head=WIZ2
bytes=da6c da6a da66 da68
foot=TKOD
```

Wizardry III: Legacy of Llylgamyn

“The Ultimate Wizardry Archives” edition:

```
[netpeek]
enabled=true
rate=100
targethost=localhost
port=49000
head=WIZ3
bytes=db12 db10 db0c db0e
foot=LLYL
```

Wizardry 6: Bane of the Cosmic Forge

```
[netpeek]
enabled=true
rate=100
targethost=localhost
port=49000
head=BANE
bytes=14ddc 1673c 16740 1673e 1673a
foot=WIZ6
```

Remote Play Setup

By default the configurations above are set to send data to localhost which is the address of the local machine. To run Custom DOSBox on a different computer, simply change the targethost value in the [netpeek] section to the IP address of the machine Grid Cartographer is running on. You can find this “LAN Address” on the *Game Link* page of the *Options* menu.

Lagging Updates?

The rate parameter specifies the number of milliseconds between updates. You can reduce the value here to reduce latency. However, past a certain point you will ‘flood’ the network and it may run slower again or less reliably – you will need to experiment. As a reference point note that the 60Hz refresh rate of a typical computer monitor occurs every 17 milliseconds.

