Appendix D. Maze Runner Lessons (Steps Only)

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Please Read Me First!!!!

This Document

This document contains summary steps for achieving the construction of the MazeRunner prototype. Do not expect the steps to match those found in the printed book. Additionally, it has special steps for Windows and OSX users so that both sets of users can use the same guide.

Folders vs. Directories

Throughout this guide, I will be using the word folder instead of directory. For you Windows and Linux guys and gals, just remember. **Folder == Directory**

Copying Folders, Files, File Contents, Disk Contents, etc.

Throughout this guide, I will be asking you to copy a variety of 'things' from one place to another. I have tried to be clear in my instructions but nonetheless, you may wonder if I have goofed a step here or there.

Rest assured, I have walked through every step in this appendix. So, if I say, "Copy folder X. Then paste it into folder Y", this is exactly what I intend for you to do. If I should ever wish you to copy just the contents of a folder (or file), I will explicitly state, "Copy the contents of folder X".

Copy-Paste Operations

All copy operations in this document are achieved in two steps. First, a copy to the copy buffer and then a paste to some folder (or file), as specified in the instructions you are reading at the time. This was done to make the steps easier to write and to understand.

OSX Differences

The Key to start the Mission Editor is "CTRL F11". This removes a possible conflict with other default MAC key mappings. **In OSX 10.4, F11 is tied to Expose' by default.**

The Key to start the GUI Editor is "CTRL F10". This removes a possible conflict with other default MAC key mappings. **In OSX 10.4, F10 is tied to 'Applications Windows' by default (this shows all open windows for the current application.)**

D.0 Getting Started

D.0.1 Copy Accompanying Disk To Hard Drive (IMPORTANT).

As your first step, please copy the entire contents of accompanying disk to a folder named "GPGT". You may place this folder on your desktop, or in a location of your choice. Please just remember where you have placed it.

For the remainder of this appendix, I will simply be referring to this folder as GPGT.

D.0.2 Create MazeRunner directory Windows Users ONLY.

Please follow these steps:

1. Copy the entire "GPGT\MazeRunner\WindowsStarter" directory.
2. Paste this directory to your desktop.
3. Rename the resulting directory to: **MazeRunner.**

For the remainder of this appendix, I will refer to this directory as MazeRunner.

D.0.3 Create MazeRunner directory OSX Users ONLY.

Please follow these steps:

1. Copy the entire "GPGT\MazeRunner\OSXStarter" directory.
2. Paste this directory to your desktop.
3. Rename the resulting directory to: **MazeRunner.**

For the remainder of this appendix, I will refer to this directory as MazeRunner.

D.0.4 Copy prototype into MazeRunner.

1. Copy the folder "**GPGT**/MazeRunner/A_SettingUp/prototype".
2. Paste it into "**MazeRunner**/"

D.0.5 Edit main.cs.

1. Open the file "**MazeRunner**/main.cs"
2. Look at the top of the file, on about line 6 and you will see this statement:

```
$defaultGame = "demo";
```

3. Please change it to this:

```
$defaultGame = "prototype";
```

D.0.6 Add systems scripts.

1. Copy the folder "**GPGT**/base/scripts/EGSystems".
2. Paste it into the folder "**MazeRunner**/prototype/".
3. Open the file "**MazeRunner**/prototype/main.cs".
4. Locate the *onStart()* function.
5. Modify the top of this function to contain this code:

```
function onStart()
{

   // Maze Runner Changes Begin -->
   exec("./EGSystems/SimpleInventory/egs_SimpleInventory.cs");
   exec("./EGSystems/SimpleTaskManager/egs_SimpleTaskManager.cs");
   exec("./EGSystems/Utilities/egs_ArrayObject.cs");
   exec("./EGSystems/Utilities/egs_Misc.cs");
   exec("./EGSystems/Utilities/egs_Networking.cs");
   exec("./EGSystems/Utilities/egs_SimSet.cs");
   exec("./EGSystems/Utilities/egs_String.cs");
   // <-- Maze Runner Changes End

   //.. leave remaining code alone
```

D.0.7 Add Maze Runner data.

1. Copy the folder "**GPGT**/Base/Data/GPGTBase"
2. Paste it into the folder "**MazeRunner**/prototype/data/"
3. Copy the folder "**GPGT**/MazeRunner/A_SettingUp/MazeRunner"
4. Paste it into the folder "**MazeRunner**/prototype/data/"

D.0.8 Create Maze Runner scripts directory.

Please create a new folder named:

"**MazeRunner**/prototype/server/scripts/MazeRunner".

D.0.9 Testing Windows User Only.

In the directory **MazeRunner**, please locate the file "demo.exe". Double click this to start the prototype of MazeRunner.

For the remainder of this appendix, when I say to 'start your prototype' this is what I mean.

D.0.10 Testing OSX Users Only.

In the directory **MazeRunner**, please locate the file "Torque Demo OSX". Double click this to start the prototype of MazeRunner.

For the remainder of this appendix, when I say to 'start your prototype' this is what I mean.

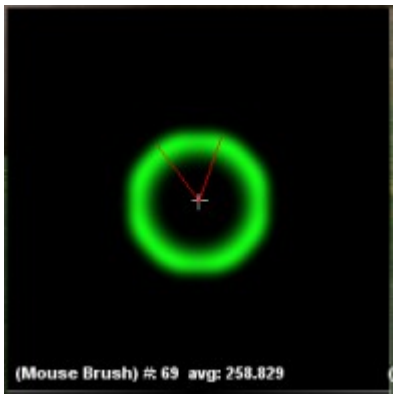
D.1 Lesson #1 – Terrain for Our Game

D.1.1. Copy files.

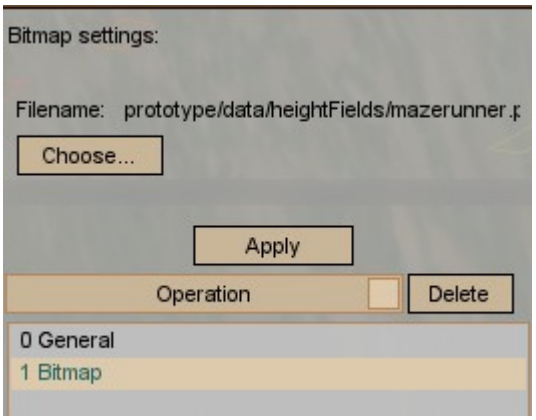
1. Copy the folder "**GPGT**/MazeRunner/Lesson_001/heightFields"
2. Paste it into the folder "**MazeRunner**/prototype/data/".

D.1.2. Generate new terrain.

1. Start your prototype.
2. Run the "Maze Runner" mission.
3. Start the Terraformer.
4. Use the 'Bitmap' operation to generate a terrain using the file "prototype/data/heightFields/mazerunner.png".



Terrain Preview



Terraformer Settings

5. Save the mission.

D.1.3. Adjust spawn point.

Please use the inspector to change the position of the spawn point to: "0 0 100".

Tip: The spawn point is specified by the object "SpawnSphere", found in the SimGroup "PlayerDropPoints."

D.2 Lesson #2 – Loading Datablocks

D.2.1. Copy files.

1. Copy the folder "**GPGT**/Base/Scripts/GPGTBase".
2. Paste it into the folder "**MazeRunner**/prototype/server/scripts/".

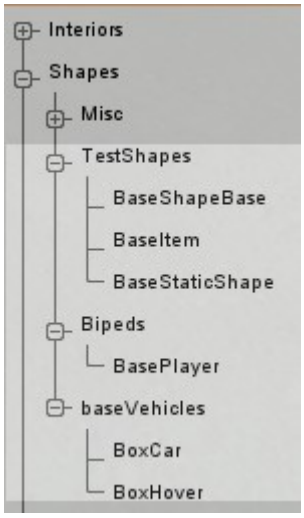
D.2.2. Edit game.cs.

Open the file "**MazeRunner**/prototype/server/game.cs" and edit the function *onServerCreated()* to look like this (BOLD lines are new or modified):

```
exec("./markers.cs");
exec("./player.cs");
exec("./GPGTBase/loadGPGTBaseClasses.cs"); // MazeRunner
```

D.2.3. Testing.

1. Start your prototype.
2. Load the "Maze Runner" mission.
3. Start the creator tool.
4. Verify that you the creator tree contains the highlighted shapes (as shown in image to right).



D.3 Lesson #3 – Game Coins

D.3.1. Copy required files.

1. Copy the file "**GPGT**/MazeRunner/Lesson_003/coins.cs".
2. Paste it into the folder "**MazeRunner**/prototype/server/scripts/MazeRunner/".

D.3.2. Edit game.cs.

Open the file "**MazeRunner**/prototype/server/game.cs" and edit the function *onServerCreated()* to look like this (BOLD lines are new or modified):

```
exec("./GPGTBase/loadGPGTBaseClasses.cs"); // MazeRunner
exec("./MazeRunner/coins.cs"); // MazeRunner
```

D.3.3. Testing.

1. Start your prototype.
2. Open the "Maze Runner" mission.
3. Start the Creator.
4. Look under "Shapes" and find the folder "GameItems".
5. Open the "GameItems" folder to find a new placeable shape named "Coin".

If this did not work, check your console for errors (typos, files not found, etc).

D.4 Lesson #4 – Fade and Fireball Blocks

D.4.1. Copy required files.

1. Copy the file "**GPGT**/MazeRunner/Lesson_004/fadeblocks.cs".
2. Paste it into the folder "**MazeRunner**/prototype/server/scripts/MazeRunner/".
3. Copy the file "**GPGT**/MazeRunner/Lesson_004/fireballs.cs".
4. Paste it into the folder "**MazeRunner**/prototype/server/scripts/MazeRunner/".

D.4.2. Edit game.cs.

Open the file "**MazeRunner**/prototype/server/game.cs" and edit the function *onServerCreated()* to look like this (BOLD lines are new or modified):

```
exec("./MazeRunner/coins.cs"); // MazeRunner
exec("./MazeRunner/fadeblocks.cs"); // MazeRunner
exec("./MazeRunner/fireballs.cs"); // MazeRunner
```

D.4.3. Testing.

1. Start your prototype.
2. Open the "Maze Runner" mission.
3. Start the Creator.
4. Look under "Shapes" and find the folders "FadeBlocks" and "FireBallBlocks".

If this did not work, check your console for errors (typos, files not found, etc).

D.5 Lesson #6 – Simplest Player

D.5.1. Copy required files.

1. Copy the file "**GPGT**/MazeRunner/Lesson_006/mazerunnerplayer.cs".
2. Paste it into the folder "**MazeRunner**/prototype/server/scripts/MazeRunner/".

D.5.2. Edit game.cs.

Open the file "**MazeRunner**/prototype/server/game.cs" and edit the function *onServerCreated()* to look like this (BOLD lines are new or modified):

```
exec("./MazeRunner/coins.cs"); // MazeRunner
exec("./MazeRunner/fadeblocks.cs"); // MazeRunner
exec("./MazeRunner/fireballs.cs"); // MazeRunner
exec("./MazeRunner/mazerunnerplayer.cs"); // MazeRunner
```

D.5.3. Use the new player.

Still in the file "**MazeRunner**/prototype/server/game.cs", locate the createPlayer() method and modify the player creation code to look like this (BOLD lines are new or modified):

```
function GameConnection::createPlayer(%this, %spawnPoint)
{

   //...

   // Create the player object
   %player = new Player()
   {
      dataBlock = MazeRunner;
      client = %this;
   };

   //...
```

D.5.3. Testing.

1. Start your prototype.
2. Open the "Maze Runner" mission.
3. Press "TAB"

You should be able to see the player and it should be a yellow ball. If it is, good job! If not, check the logs for errors, then go back and check your steps.

D.6 Lesson #8 – Lava in the Cauldron

D.6.1. Create new water block.

1. Start your prototype.
2. Run the "Maze Runner" mission.
3. Start the Creator Tool.
4. Create a new water block (Mission Objects -> Environment -> Water), proving the information shown in the image below.

5. Start the Inspector.
6. Modify the attributes of our new water block (MazeRunnerWater) to match the settings the the table below.

Parameter	Value
position	-256 -256 55
scale	512 512 15
UseDepthMask	true
surfaceTexture	prototype/ data/GPGTBase/water/lava.png
shoreTexture	prototype/ data/GPGTBase/water/lava.png
specularMaskTex	prototype/ data/GPGTBase/water/lavaspecmask.png
specularColor	1 1 1 0.2
specularPower	12
All dynamic fields	Remove All Of These
All others	Use defaults

7. Save the mission.

D.7 Lesson #9 – Starry Night

D.7.1. Configure the sky object.

1. Start up your prototype.
2. Run the "Maze Runner" mission.
3. Start the Inspector.
4. Change the DML file (materialList field) for the Sky Object to point to this one: "prototype/data/GPGTBase/skies/starrynight/starry_sky.dml".
5. Now, modify the remaining settings as shown in the following table.

Parameter	Value
cloudHeightPer[0]	0.5
cloudHeightPer[1]	0
cloudHeightPer[2]	0
cloudSpeed1	0.0005
cloudSpeed2	0
cloudSpeed3	0
visibleDistance	1000
fogDistance	2000
fogVolume1	550 0 300
fogVolume2	0 0 0
fogVolume3	0 0 0
all others	Use defaults
MaterialList *(done in step #4 above)*	prototype/data/GPGTBase/skies/starrynight/starry_sky.dml

6. Save the mission.

D.8 Lesson #10 – Low Lighting

D.8.1. Configure the sun object.

1. Start up your prototype.
2. Run the "Maze Runner" mission.
3. Start the Inspector.
4. Modify the Sun Object settings as shown in the following table.

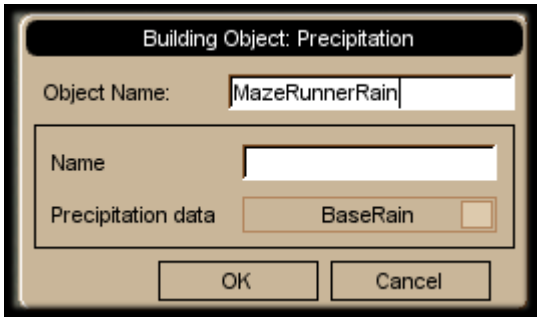
Fields	Values
elevation	90
azimuth	90
color	0.25 0.15 0.15 1
ambient	0.1 0.1 0.1 1

5. Relight the mission (ALT + L).
6. If the lighting is not satisfactory, feel free to adjust it further.
7. Save the mission.

D.9 Lesson #11 – Stormy Weather

D.9.1. Adding the rain.

1. Start your prototype.
2. Run the "Maze Runner" mission.
3. Start the Creator.
4. Create a precipitation object (Mission Objects -> Environment -> Precipitation) using the settings shown in the image below.



5. Start the Inspector.
6. Modify our newly created Precipitation object (MazeRunnerRain) to have the settings shown in the following table.

Parameter	Value
minSpeed	1
maxSpeed	1.5
rotateWithCameraVel	true
numDrops	2000
boxWidth	200
boxHeight	100
doCollision	0
all others	Use defaults

7. Save the mission.

D.9.2. Adding the lightning and thunder.

1. Start the Creator.
2. Create a lightning object (Mission Objects -> Environment -> Lightning) using the settings shown in the image below.

3. Start the Inspector.
4. Modify our newly created Lighting Object (MazeRunnerLightning) to have the settings shown in the following table.

Parameter	Value
position	0 0 300
scale	256 256 250
strikesPerMinute	6
strikeWidth	1.5
strikeRadius	128
color	0.89 0.8 0.42 1
fadeColor	0.5 0.9 0.9 1
chanceToHitTarget	0
boltStartRadius	32
all others	Use defaults

5. Save the mission.

D.10 Lesson #12 – Teleport Station Effect

D.10.1. Copy required files.

1. Copy the file "**GPGT**/MazeRunner/Lesson_012/teleporters.cs".
2. Paste it into the folder "**MazeRunner**/prototype/server/scripts/MazeRunner/".

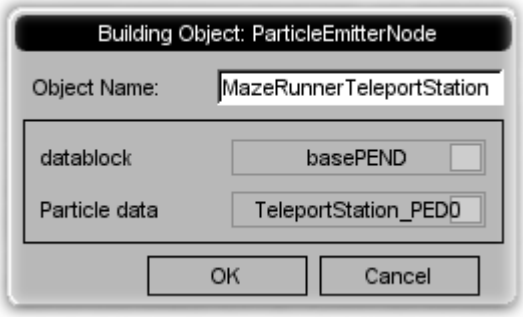
D.10.2. Edit game.cs

Open the file "**MazeRunner**/prototype/server/game.cs" and edit the function *onServerCreated()* to look like this (BOLD lines are new or modified):

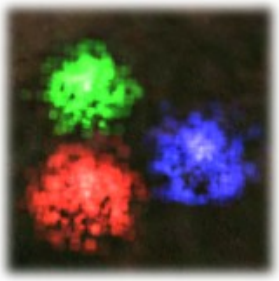
```
exec("./MazeRunner/mazerunnerplayer.cs"); // MazeRunner
exec("./MazeRunner/teleporters.cs"); // MazeRunner
```

D.10.3. Testing the emitters.

1. Start you prototype.
2. Load the "Maze Runner" mission.
3. Use the Creator to place a particle emitter ("Mission Objects -> Environment -> ParticleEmitter").
4. Give the emitter (node) any name you like.
5. Use the basePEND ParticleEmitterNodeData datablock.
6. Select one of the three ParticleEmitterData datablocks from this lesson.



ParticleEmitter Dialog Settings



Resultant Emitters

D.11 Lesson #13 – Celestial Bodies

D.11.1. Loading the celestial bodies.

1. Open the file "**MazeRunner**/prototype/data/missions/mazerunner.mis"
2. Open the file "**GPGT**/MazeRunner/Lesson_013/CelestialBodies.cs"
3. Select the contents of CelestialBodies.cs and copy it into your copy buffer (CTRL+C for Windows and ⌘+C OSX).
4. Go back to the mazerunner.mis file and scroll to the bottom.
5. Paste (CTRL+V for Windows and ⌘+V OSX) the data you just copied into your copy buffer just before these lines:

```
};
//--- OBJECT WRITE END ---
```

D.11.3. Testing the celestial bodies.

1. Start you prototype.
2. Load the "Maze Runner".
3. Press “ALT+C”
4. Look around. At this time, the three celestial bodies should be visible.

D.12 Lesson #17 – Level Loader

D.12.1. Copy required files.

1. Copy the file "**GPGT**/MazeRunner/Lesson_017/levelloader.cs"
2. Paste it into the folder "**MazeRunner**/prototype/server/scripts/MazeRunner".

D.12.2. Edit game.cs.

Open the file "**MazeRunner**/prototype/server/game.cs" and edit the function *onServerCreated()* to look like this (BOLD lines are new or modified):

```
   exec("./MazeRunner/teleporters.cs"); // MazeRunner
   exec("./MazeRunner/levelloader.cs"); // MazeRunner
```

D.12.3. Add temporary spawn point.

1. Open the file "**MazeRunner**/prototype/data/Missions/mazerunner.mis"
2. Add the following code at the bottom of the file (BOLD lines are new):

```
   new TSStatic() {
      position = "0 0 295";
      rotation = "1 0 0 0";
      scale = "1 1 1";
      shapeName = "~/data/MazeRunner/Shapes/MazeBlock/blockA.dts";
   };
};
//--- OBJECT WRITE END ---
```

3. In the same file, locate the Spawn Point (PlayerDropPoints) and modify it to have the following position (BOLD line is modified):

```
   new SimGroup(PlayerDropPoints) {

      new SpawnSphere() {
         position = "0 0 300";

        // ...

      };
   };
```

D.12.4. Testing the level loader.

1. Start you prototype.
2. Load the "Maze Runner".
3. The player should now drop onto a block (approximately parallel to rim of cauldron).
4. Open the console (~) and type this: BuildLevel(0)
5. When you press enter, the level will be built. You can verify this by closing the console (~) and looking over the edge of the block your character is on. See it? Way...below.

D.13 Finish Gameplay Code

D.13.1. Copy required files.

1. Copy the folder "**GPGT**/MazeRunner/MazeRunner_Post_Finishing_the_Prototype/prototype2"
2. Paste it into "**MazeRunner**/"
3. Copy the file "**GPGT**/MazeRunner/MazeRunner_Post_Finishing_the_Prototype/main.cs"
4. Paste it into "**MazeRunner**/"

With this modification we are now running the code found in the folder "**MazeRunner**/prototype2" .

This folder includes ALL of the (final) changes we will examine while reading section "14.8. Finish Gameplay Code" Do not modify the code, even if the instructions in the book tell you to. Simply read along instead.

D.14 Improve Feedback

D.14.1. Copy required files.

1. Copy the folder "**GPGT**/MazeRunner/MazeRunner_Post_Improve_Feedback/prototype3".
2. Paste it into the folder "**MazeRunner**/".
3. Copy the folder "**GPGT**/MazeRunner/MazeRunner_Post_Improve_Feedback/main.cs".
4. Paste it into the folder "**MazeRunner**/".

With this modification we are now running the code found in the folder "**MazeRunner**/prototype3" .

This folder includes ALL of the (final) changes we will examine while reading section "14.9. Improve Feedback" Do not modify the code, even if the instructions in the book tell you to. Simply read along instead.