Minecraft ccTweaked Turtle Toolkit

The toolkit has been developed to allow survival players to carry out many tasks using turtles which can greatly speed up many mining, forestry, farming and area shaping activities.

As turtle tools never wear out, all you need is fuel to assist you in your survival world.
Once you have created a turtle by finding 3 diamonds, 1 redstone and either gold (preferred) or iron ore, then you are ready to go

Requirements:

Minecraft Java edition

Minimum version 1.7.10.
Version at time of writing 1.19.4 (with ccTweaked mod available)

Forge or Fabric mod loaders

https://files.minecraftforge.net/net/minecraftforge/forge/
This article is written using the Forge mod loader, as Fabric is relatively recent, and not supported on older versions of Minecraft.

ccTweaked mod

https://www.curseforge.com/minecraft/mc-mods/cc-tweaked

There are links on the above page to tutorials for ccTweaked.
This tutorial does not cover the installation of Forge or any mods.

Youtube series demonstrating this toolkit:

https://www.youtube.com/playlist?list=PLE8GQEkUWuwFNLS9cdTCr_1qalC4eGBOr

Craft your first turtle

If you can get 14 gold ingots, the advanced turtle it makes has 5x the fuel capacity and can use colour in the interface, so is worth the extra effort.

If not, use stone followed by iron to craft a normal turtle, which you can then use to help mine additional resources to make multiple advanced turtles.

The Advanced Computer recipe:

7 gold ingots (7 stone for basic computer)

1 redstone

1 glass pane

The Advanced Turtle recipe:

7 gold ingot (iron ingot for basic turtle)

1 Advanced Computer (basic computer for basic turtle)

1 chest

The Advanced Crafty Mining Turtle recipe

1 Advanced Computer

1 Diamond Pickaxe (NOT used!)

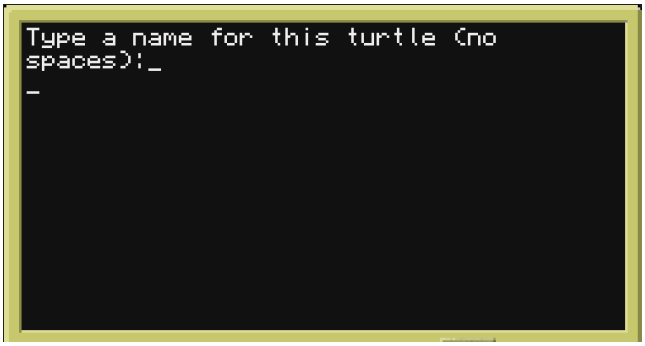
1 crafting table

Installing the toolkit

Once you have your first turtle use the following command to install or update the toolkit suite:

```
pastebin run 8qbeZevX
```

Assuming you have not named the turtle you will get this message:



Give it a name of your choice eg “Miner00”

This one will be “MinerDemo”

A number of files will be downloaded.

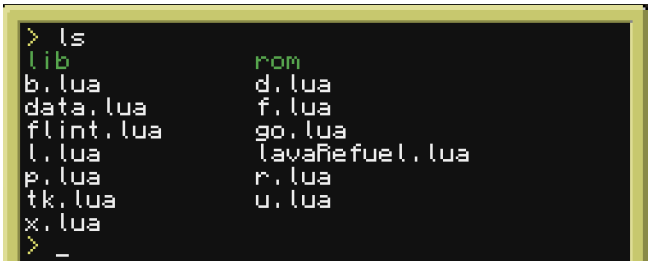
Check using the unix cmd ‘ls’

Inside the ‘lib’ directory are 2 files:

clsTurtle.lua
menu.lua

The file discussed in this tutorial is tk.lua.

This file references lib/menu and lib/clsTurtle

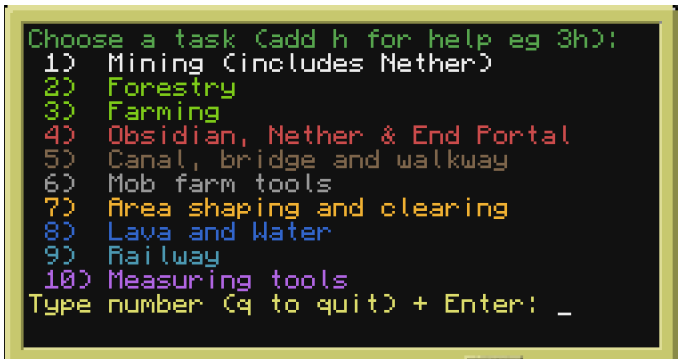


The other files are described below:

b.lua	b 5 → move 5 blocks backwards (unless obstructed) b 5 d → move 5 blocks, dig if required
data.lua	data 0 → block above data, data 1 → block forward data, data 2 → block below
flint.lua	flint → repeatedly places gravel above and digs it back until all gravel converted to flint
L.lua	L 1 → turn left (number)
p.lua	Place <number> → places item in selected slot 0: up, 1: forward, 2:down
x. lua	X <number> → digs 0:up, 1:forward, 2:down (mnemonic eXcavate)
d.lua	d 5 → down 5 (unless obstructed) d 5 d → move 5 blocks down, dig if required
f.lua	f 5 → forward 5 (unless obstructed) f 5 d → move 5 blocks forward, dig if required
go.lua	go F5R1F3R1F5R1F3 forward 5, right 1, forward 3...
r.lua	r 1 → turn right (number)
u.lua	u 5 → up 5 (unless obstructed) u 5 d → move 5 blocks up, dig if required
LavaRefuel.lua	LavaRefuel → place a bucket in the inventory when next to lava to refuel

Type tk and press Enter:

This is the main menu:



getting help for these items

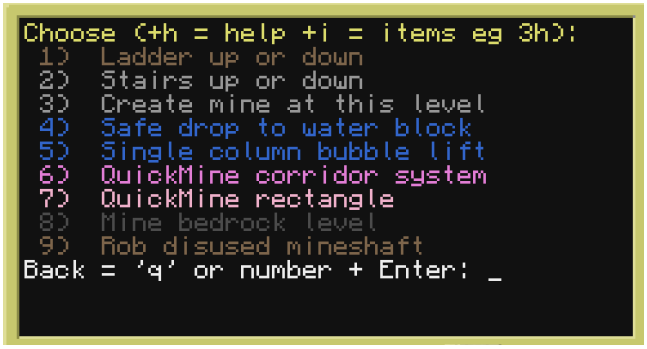
Enter a number followed by ‘h’ and press enter eg 1h gives

Pressing ‘Enter’ returns to the main menu

Option 1 Mining

Option 1.1 Ladder up or down

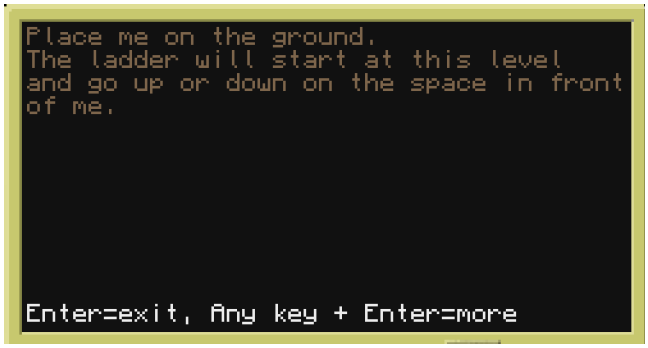
Choose 1 (Ladder up or down) and Enter:



To get help on the sub-menu items, again choose number eg 1 followed by 'h' and Enter.

This will optionally allow you to see what items are required:

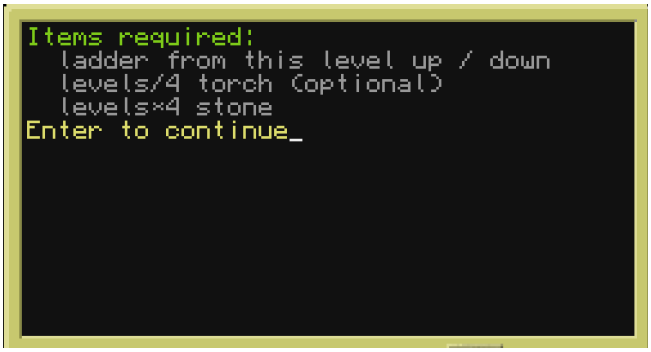
Press any key and Enter



This is a list of items required for option

1 → Mining → 1 → Ladder

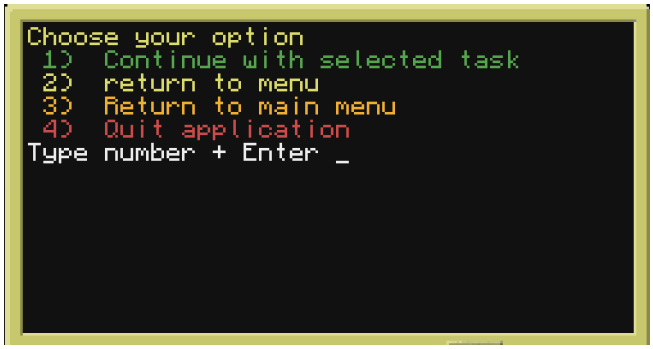
Press Enter to exit this page:



This menu gives 4 options

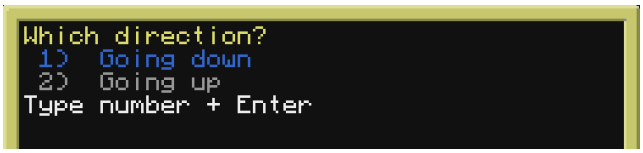
Continue with the selection eg Ladder
Return to sub-menu
Return to main menu
Give up and exit

It is a good opportunity to decide whether you have all the required items and continue, or exit to fetch them



The items page can be selected directly with option number and ‘i’ eg 1i This will go immediately to start the selected task when you exit the items page.

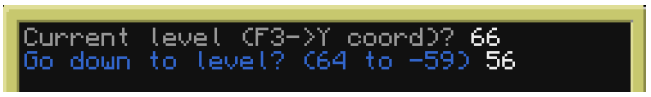
The same choices are shown for ladders (option 1) and stairs (option 2) to choose the direction.



Ladder down

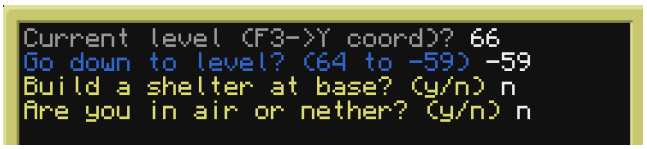
Use F3 or a map mod to find the current Y.
Enter it here.

Enter the level you want to go down.
The min/max values are automatically adjusted for MC version to reach bedrock.



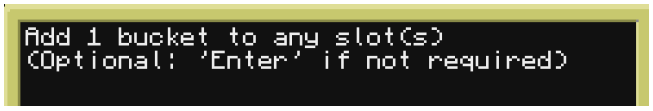
66 to 56 as chosen here should place 10 ladders down.

You can choose to build a small enclosure at the base of the ladder.



The air/nether question requests more solid blocks to surround the ladder structure if it is likely to go into lava or require additional guard blocks in the air to prevent falling.

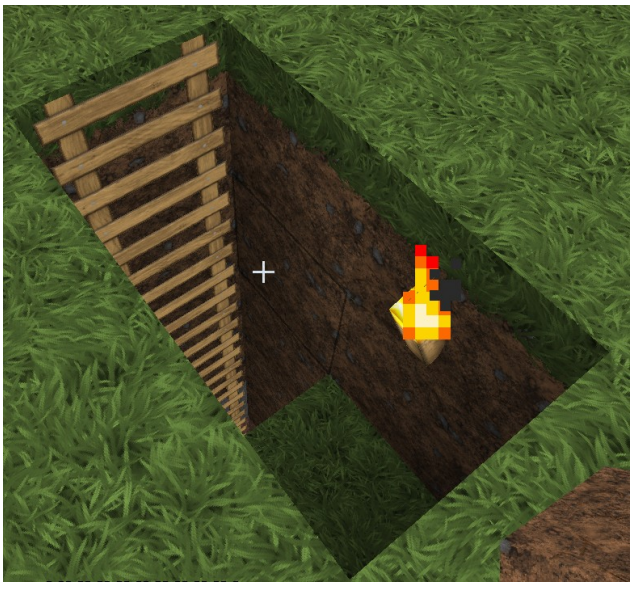
The Inventory request pages show next to gather supplies.
Optional items are indicated, but non-optional can be over-ridden with smaller quantities if required.



A bucket is used to refuel in lava (optional)

After adding 10 ladders and 2 torches, you can risk not adding any stone if the chance of water or lava below is slim.

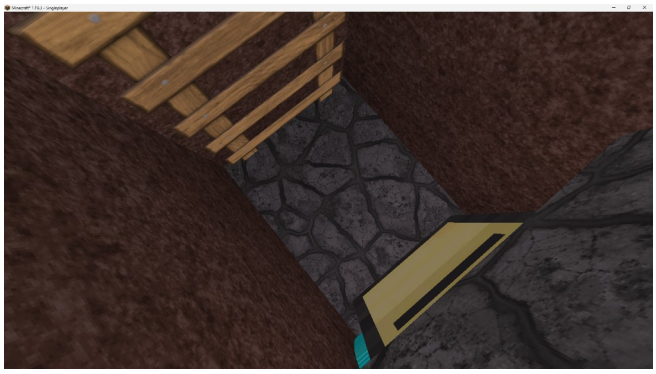
Just press Enter to continue



If it runs out of ladders the turtle will pause with a request for estimated amount required to complete.

This ladder extends 10 blocks down.

The turtle is at the bottom and can be recovered or used in-place to continue the ladder downwards.



As the shelter offer was refused, it just stays at the bottom of the ladder.

To extend the ladder further, just repeat the stages above.

Ladder up

Introduction to go.lua command

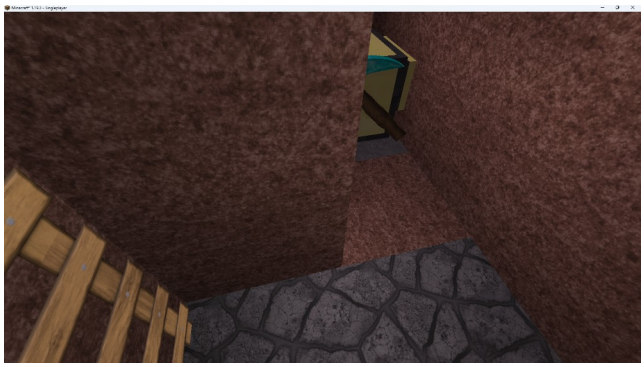
To move the turtle along from it's current position to make a ladder back to the surface use the following command directly in the console. (NOT from the tk toolkit)

```
go x0R1F1x0F1x0L1
```

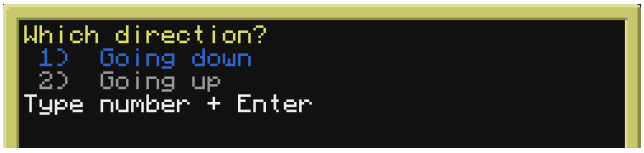
This uses the go method from the turtle class passing a string to represent the actions to be taken:
x = eXcavate (dig) + the direction 0 (up), 1 (forward), 2 (down)

R = turnRight, L = turnLeft, F = Forward + the number of turns

x0 = dig up
R1 = turn Right
F1 = Forward 1
x0 = dig up
F1 = Forward 1
x0 = dig up
L1 = turnLeft

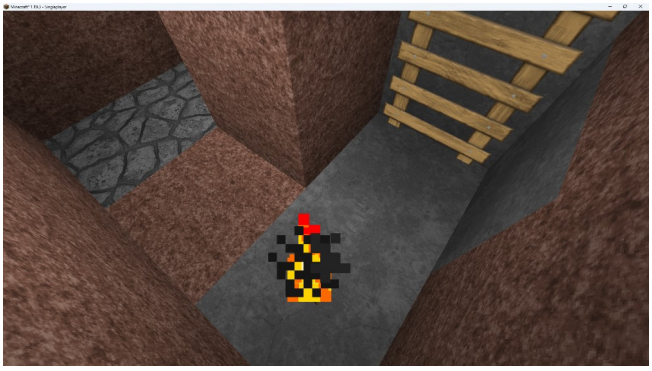


The turtle is now in position to place a ladder up. Follow the steps above until the direction option then select 2 Going up



This time, start at level 56 and go up to 66
Again the max height is calculated based on Minecraft version

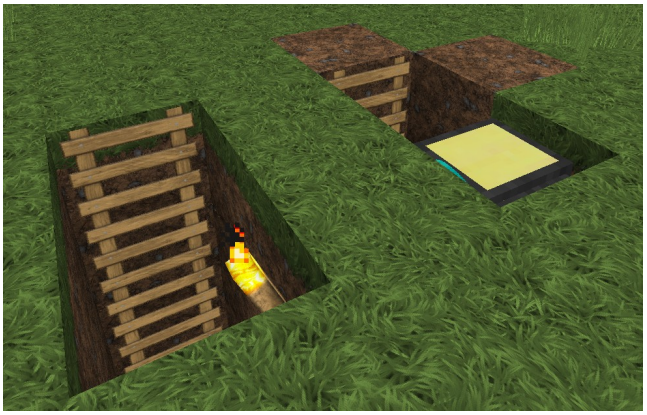
Ladder base level 56



Completed ladder down (left) and
ladder up (right)

The ladder can be extended up by repeating the stages above.

Blocks will be placed to surround the ladder on the left and right

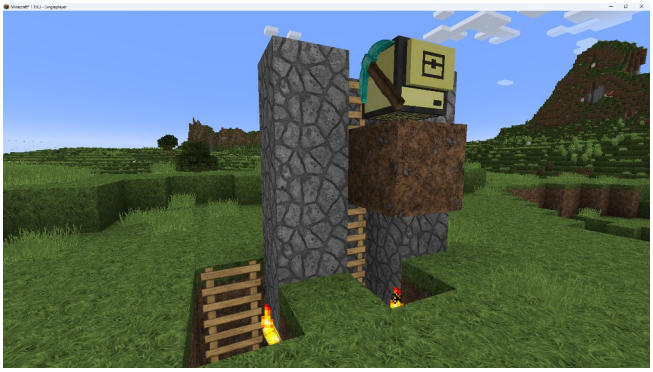


Level 66 entered as start, 70 to reach. These are the Player levels NOT the turtle level

Note the ‘y’ answer to
‘Are you in the air or nether?’ question

We have asked to go up 4 levels (66 to 70) and 16 stone was requested based on 4 per level.

The turtle was actually on level 65 at the start, and has gone up to level 69 (4 levels as requested)



Note how the ladder is surrounded by stone including the ground level, which was originally surrounded by dirt/grass blocks

Option 1.2 Stairs up or down

The procedure is exactly the same as for ladder up/down. The only difference is the items required. If you do not supply stairs, then the turtle will craft them from any stone in it's inventory.

The central column stands 2 blocks above the finish level.

Some manual tidying up will be required.

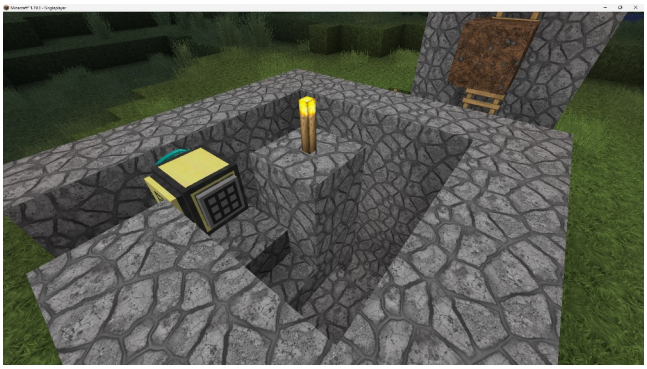
If the stairs are going down, the turtle digs vertically straight down, first, then builds the stairs from the ground up.

Manual completion of surrounding wall,

reduction of column and replacing dirt with cobble.

Torches can be placed on every 4th corner block

along the staircase



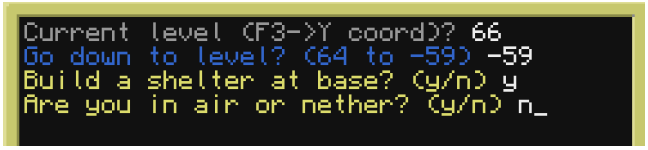
Project: Diamond Mine

The preferred method of creating a deep (diamond) mine is to use 1.1 ladder up or down and choose bedrock as the destination (5 or -59 depending on MC version)

Follow the guide above for ladder down

This time select ‘y’ when asked about the

shelter at the base

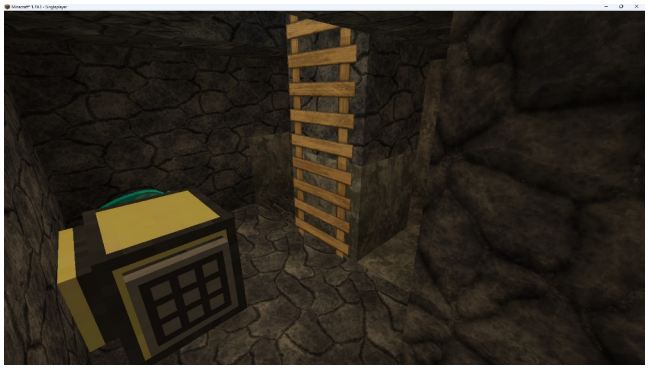


Typically you will need

1. 2 stacks of ladders,
2. 2 stacks of cobble / deepslate
3. half stack of torches

The completed ladder

with base shelter:



Typically more diamonds are found in the 9 layers above bedrock.

The turtle just needs to be rotated 180 degrees to create the first auto-mine as follows:

use ‘R 2’ or ‘L 2’ in the console to rotate the turtle (NOT from tk)

Option 1.3 Create a mine at this level

This screenshot shows the ideal position:

On bedrock

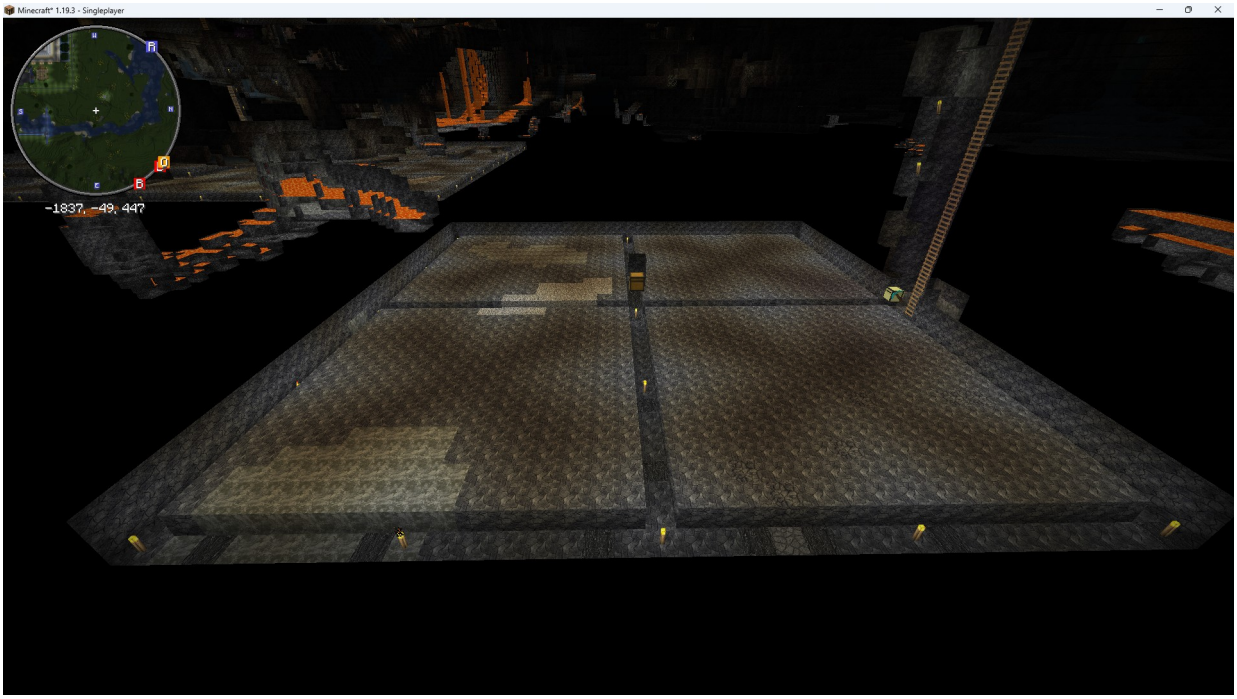
Facing away from the ladder

1. Start tk
2. Choose option 1 Mining
3. Choose Option 3 Create a mine at this level

It will ask for the following inventory items:

1. 24 Torch – to place at set positions
2. 1 bucket – to use for refuelling if entering lava
3. 64 stone – reserve for filling in voids in the path or ceiling
4. 1 chest – placed at the ceiling centre of the mine to store low value items

It will take around 45 minutes to create the mine which looks like this:



The mine is 33 x 33 blocks with a surrounding corridoor. There are 2 further corridoors crossing through it. The rest is 1 block high, with valuables stripped out over 3 layers: celing, eye level and foot level

Great thing is you can leave it to its own devices while you do other things, but keep within the loaded chunks otherwise the program will stop.

Results of this demo of the mine above:

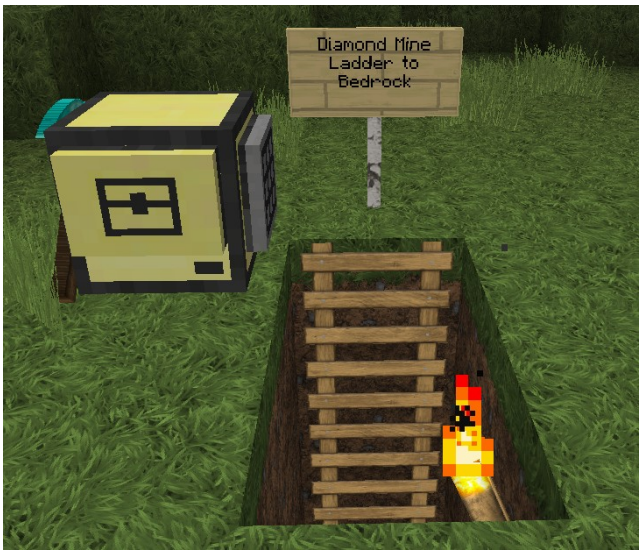
Repeat the process on the other side of the ladder column, then go up 3 blocks, rinse and repeat.

6 of these mines can produce a full stack of diamonds or more.

Option 1.4 Safe drop to water block

Getting down the ladder of around 120 blocks can take some time so the next step is to create a single block sized hole down to bedrock, place water at the bottom, then simply jump in…

Start next to the ladder:

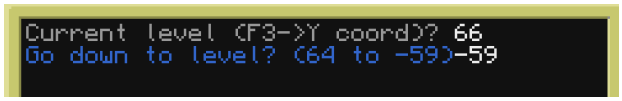


Start tk

Choose option 1 Mining

Choose Option 4 Safe drop to water block

Enter current and desired levels:



The Inventory will ask for the height * 2 blocks

Add what you can, and press Enter to

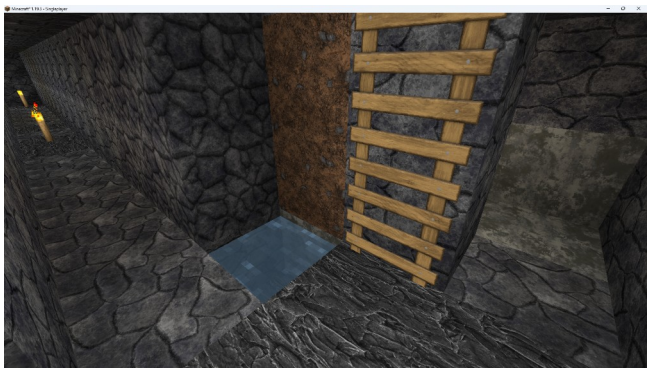
over-ride the request.

The turtle will return to this point.

The turtle rotates as it descends and places blocks anywhere there is air, water or lava so the shaft is fully surrounded by blocks.

Ladders are considered blocks, so by going next to a ladder the shaft can be used at any level by simply walking into it.

The finished water drop looks like this:



The dirt blocks were placed as part of the code

but can easily be removed.

The turtle has already returned to the surface,

back to it's starting position.

Option 1.5 Single column bubble lift

If you have already been to the Nether and have soul sand, then you can make a bubble lift.

Place the turtle next to the ladder.

If you have already made a safe drop on one side, then place it on the other side:

If you are at bedrock level (-59 / 5) then the turtle will move up 2 places to create a water source.

Make sure you have 2 water buckets and as many empty buckets (max 12) as possible.

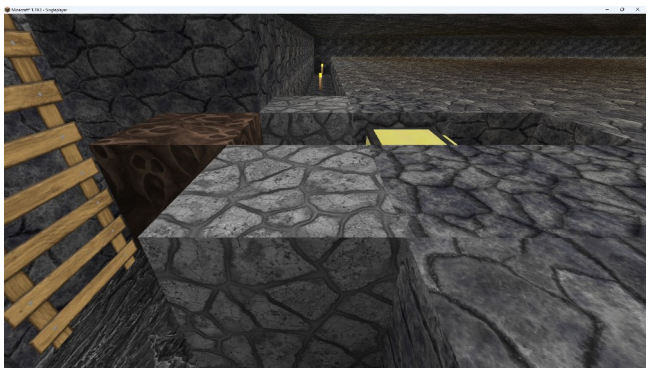
The Inventory will prompt you for the maximum number.

The stages of the code are shown here:

```
-- prepare source area and place soul
   sand
```

Next action

```
-- ready for water sources to be placed
   and fill buckets
```

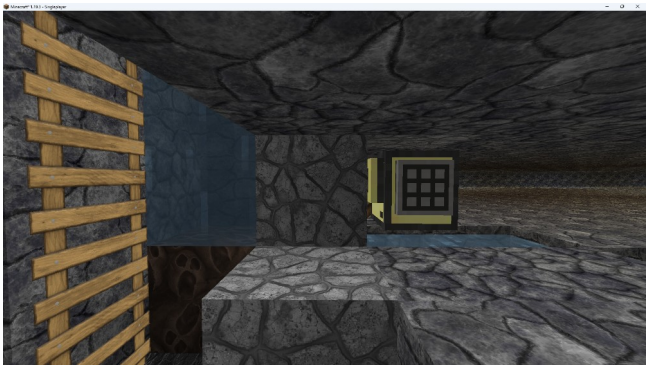


sources placed, buckets filled:

Next action:

```
-- build remaining lift
```

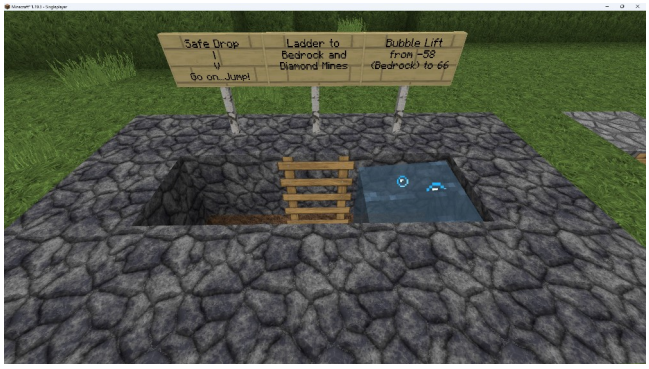
Completed base. Water column rises to the same height as the ladder



Manually modified top with cobbled deepslate border and reposition signs

Central ladder remains for scenic descent / ascent

Enjoy



Note the cobble plug in the ceiling placed as the turtle descended.

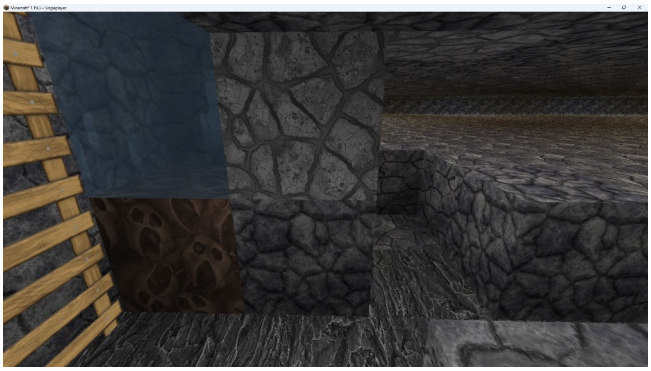
Suggested alteration of base to allow for mine

workings.

Take care with further mines to place the

turtle 1 block further away from the ladder

to protect the bubble column



View from bedrock looking up

Option 1.6 QuickMine Corridor system

This is the first part of a split of the automated process used earlier into two parts. ***It is much faster than the auto-mine as checks are not made to seal water or lava.***

A rectangular corridor system is constructed with both floor and ceiling checked for voids.

The default size to match the automated system is 17 x 17 (a quarter of the auto-mine size)

These can be repeated as required to replicate the auto-mine.

The downside is if water or lava is encountered, it is left to the player to sort it out.

Place the turtle round the back of the ladder block to test this out.

From the console use:

`f 1 d`

to move forward into the wall:

1. Start tk
2. Menu → 1. Mining
3. Menu → 6h QuickMineCorridor Help
4. Or Menu → 6 to avoid help
5. Choosing 6i or any key + enter after 6h displays the items required:

```
Place me at eye height
or on the floor, left corner.
B|B|B|B|B|B|B|B
B|  |  |  |  |  |B
B|  |B|B|B|B|  |B
B|  |B|B|B|B|  |B
B|  |B|B|B|B|  |B
B|^|  |  |  |  |B  ^ = turtle
B|P|B|B|B|B|B|B|B  P = Player


Enter=exit, Any key + Enter=more
```

```
Items required:
  1 bucket (optional)
  64 stone
Enter to continue
```

When asked for the width and length (of the rectangle) you can just hit Enter to accept the default value of 17

```
Width (2-64 default 17)
Length (2-64 default 17)
```

You are then given a list of starting positions.

As the turtle is already in place, option 1 is selected.

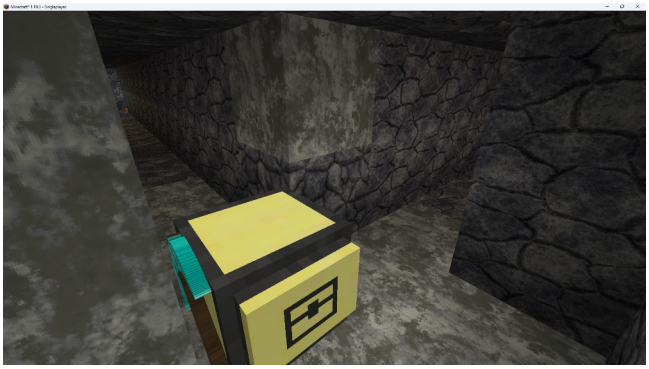
```
Starting position?
 1)  At corridor start, on the floor
 2)  At corridor start, on the ceiling
 3)  On floor, move forward to start
 4)  On ceiling, move forward to start
Type number (q to quit) + Enter 1
```

If it had been placed immediately behind the ladder column, then option 3 would have been chosen

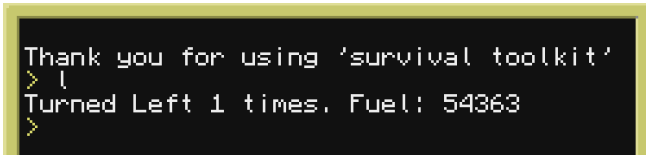
The turtle moves forward 17 (or chosen amount) blocks, turns right 3 times to complete the rectangle

Example of possible danger:

Completed Corridor system:



From this position, the left side can be completed by rotating the turtle to the left (L command) and running the same tk menu item:



Repairing a mine using direct commands

Remember the lava leak shown above?

Here is how to fix it safely:

Get as close as you can to the leak and place a block

Place the turtle on top and add a stack of any stone/ dirt etc.

The leak is on the left side

In the console type f (enter)

type L (Enter)

It is now facing the lava

Make sure the stone in the inventory is active and type

p 1

This will place cobble into the lava:

Use the commands

- f number forward
- l number left
- r number right
- d number down
- u number up
- p number place 0 or 1 or 2 up, forward, down

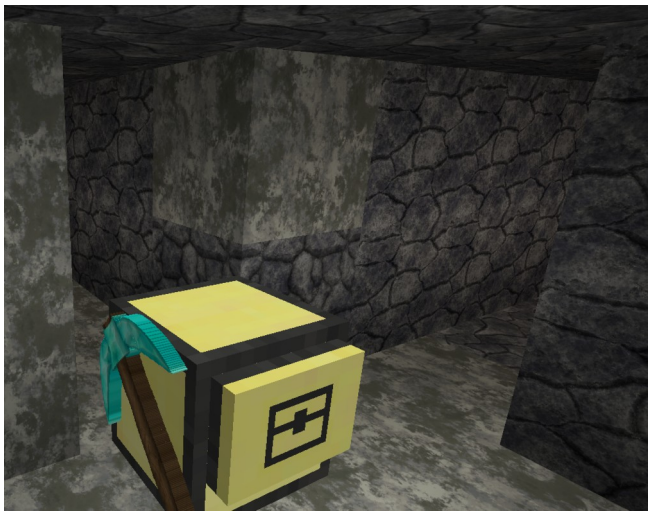
to fill all the leaks

Option 1.7 QuickMine Rectangle

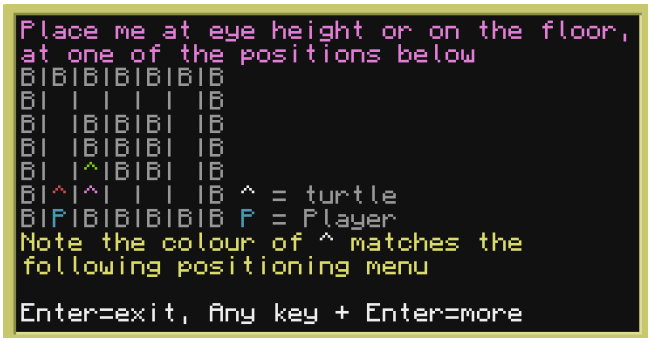
This option removes the top half of the blocks enclosed by the corridor rectangle.

Any valuable blocks above or below are mined. The ceiling is NOT plugged if it has lava.

The turtle can remain in the floor position if a corridor system has just been completed:



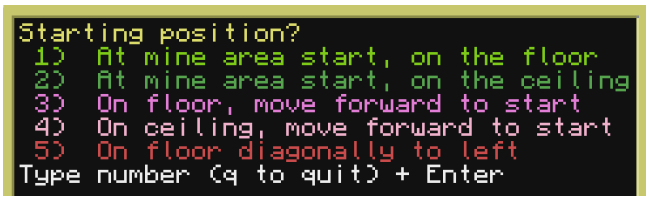
1. Start tk
2. Menu → 1. Mining
3. Menu → 7h QuickMineCorridor Help
4. Or Menu → 7 to avoid help
5. Choosing 7i or any key + enter after 6h displays the items required:



The help screen shows 3 positions to choose from. The screenshot shows the left of the two. The colour of the ^ symbol represents the following menu colours:

The default width and length is 15

When the start position menu shows:



Use 5 On floor diagonally left in this case

Mission complete!

Option 1.8 Mine Bedrock level

This function digs a specified rectangle down to bedrock and rotates as it goes, clearing all blocks as it goes.

Place the turtle on level -59 or (5 pre 1.12.2) and select sub-menu item 8

It takes a lot of time and fuel with very little valuable items gained, but can be done if desired.

An option is to leave the bedrock exposed, or back filled to leave a smooth floor.

Here is an example of exposed 15x15 area:

Option 1.9 Rob disused mineshaft

Typical mineshaft is a 3 x 3 corridor:

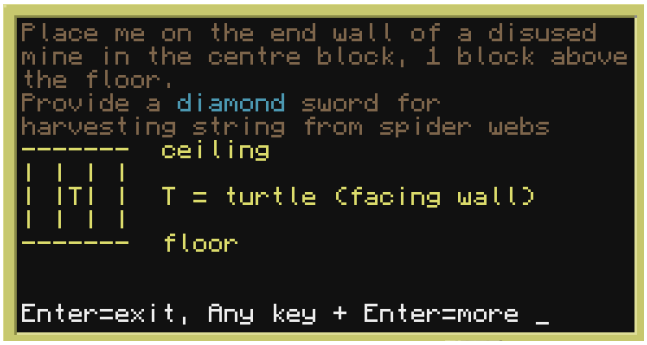
Start tk

Choose option 1. Mining

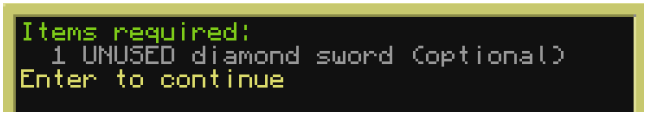
Choose option 9. Rob disused mineshaft

(The term ‘rob’ comes from archaeological investigations, where articles are robbed from the site)

Help is automatic, so the help screen shows without needing to use 9h



9i shows inventory items:



Turtle ready to go:

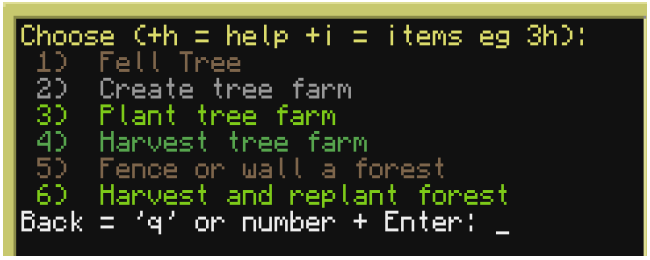
It turns round and removes all items in it’s path.

If a cobweb is detected and you supplied a sword, the sword is equipped to cut the cobweb into string.

It stops at the end of the third run

Option 2 Forestry

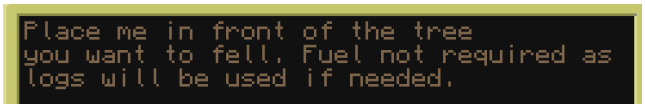
These are the sub-menu items:



2.1 Fell Tree

Place the turtle next to the tree

1. Start tk
2. Option 2 Forestry
3. Option 1h Fell Tree (help)



The inventory will ask for a chest.

Only add one if you have no fuel, then it will be used to refuel the turtle as it fells the tree, by crafting planks from logs. (The chest is used to empty the inventory prior to crafting)

2.2 Create tree farm

This function creates a 15 x 15 walled area with water system to capture saplings and sticks and deliver them to the front for collection.

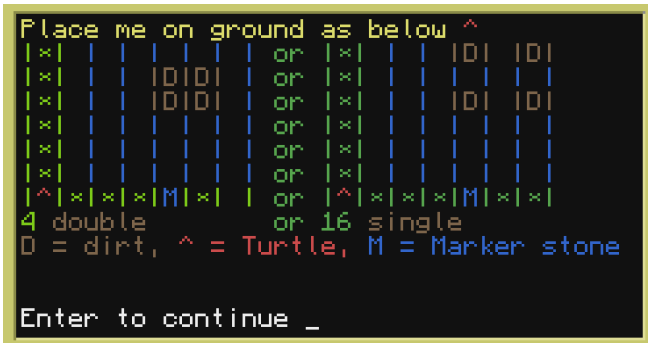
Place the turtle at the lower left corner of the area you want to use.

In this screenshot it has been placed on the right side of an existing tree farm

Clearing this area of trees and excess blocks is an option.

It does NOT place dirt blocks or saplings

1. Start tk
2. Option 2. Forestry
3. Option 2. Create tree farm



This help screen shows automatically:

It shows the potential tree farm options and the starting position on the lower left corner

Choose the correct option on the next menu.

As this farm is placed next to an existing one, use option 2

The next question detemines whether to call

the area clearing function first. In the screenshot there is nothing to be removed.

The inventory aks for:

320 stone

4 polished (stone / andesite / granite/ diorite)

5 water buckets

The polished blocks are used as markers when the outer wall is built:

The turtle starts by building a 2 block high wall 15 x 15 blocks round the farm.

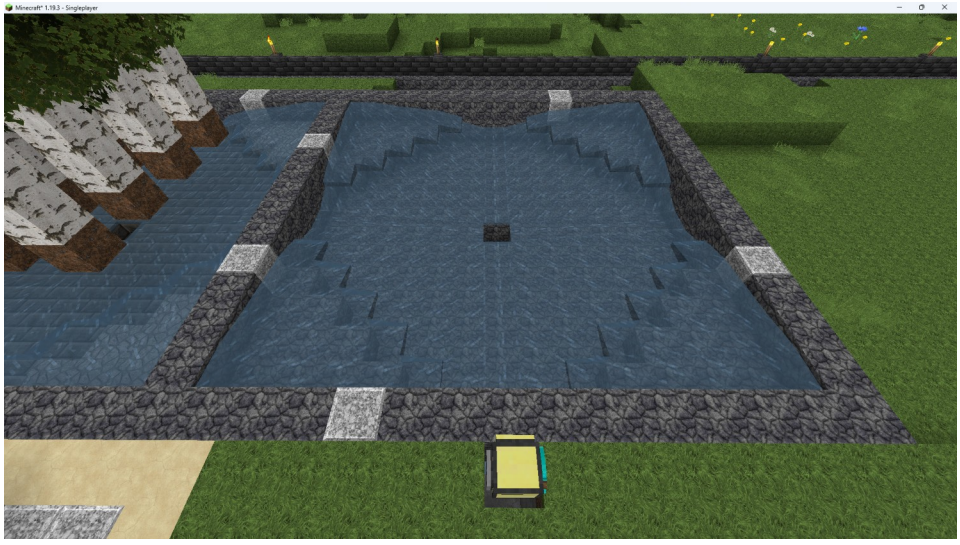
Markers using polished blocks are placed 4 blocks in from each corner. These are the positions used when planting or harvesting the trees.

The next stage is to hollow out the farm and line the base with stone:

Next the corners are padded out to prepare for the correct water flow patterns.

Next the water sources are placed in each corner:

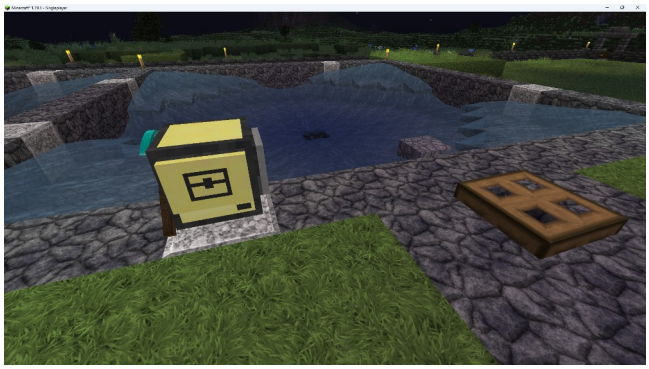
Finally the centre position is mined out and a flooded tunnel built to the front. The player can then place hopper and chests as required.



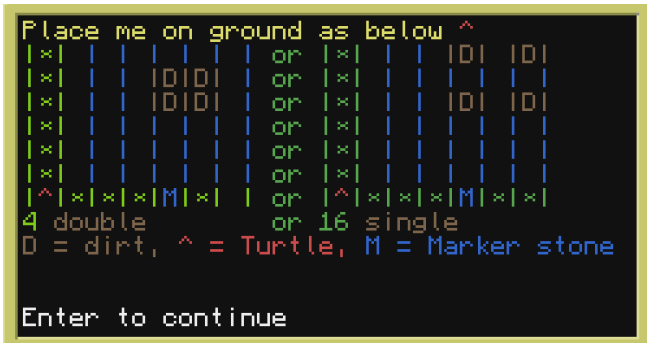
2.3 Plant tree farm

Place the turtle on a marker stone (4 blocks from lower left corner)

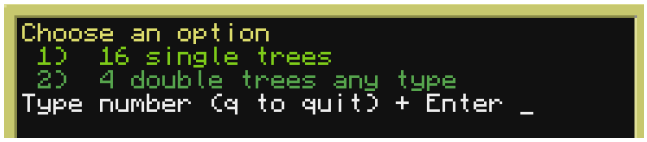
Note the trapdoor above collection hopper/chest below



1. Start tk
2. Option 2. Forestry
3. Option 3. Plant tree farm
4. The help screen shows automatically:



Choose between 16 single trees or four groups of 4.



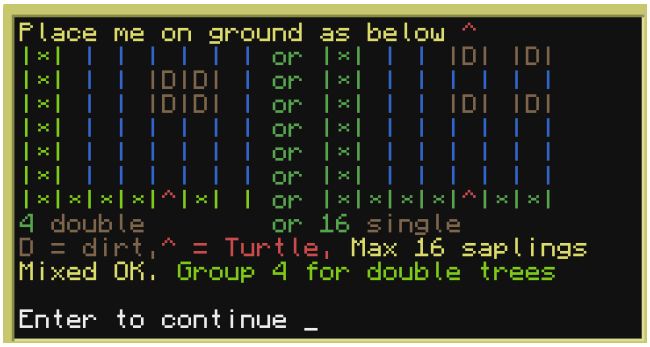
This is required for dark oak, but optional for all others. It is usually more productive to use double trees

This screenshot shows 16 Acacia saplings planted in groups of 4 in the new farm added to an existing single tree Birch, and double tree Spruce farms. 1 sapling has already grown:

2.4 Harvest tree farm

1. Start tk
2. Option 2. Forestry
3. Option 4. Harvest tree farm

The help screen loads automatically:



The harvesting process is the same for both single and double trees.

The turtle digs the dirt and everything above until the inventory does not change so it knows all logs have been cut.

It then returns to the starting place. Some saplings and sticks may fall and be collected by the water collector.

2.5 Fence or wall an enclosure

This is designed to enclose a natural forest, or even a planted one, but leaving the terrain alone.

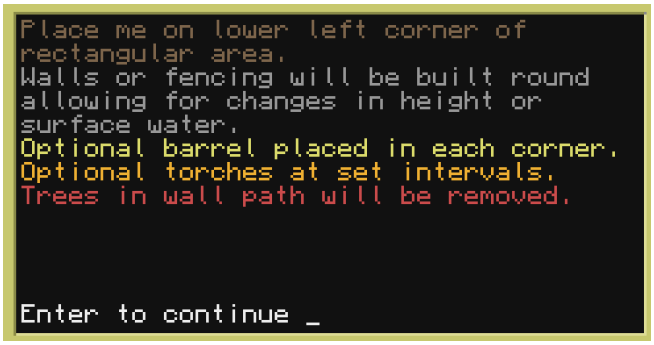
No pits or water are filled, trees and flowers are left unless in the direct path of the wall.

A barrel can be placed in each corner, used for storage of logs if the forest is cut and re-planted by using option 6 Harvest and replant forest. Torches can be placed at set intervals

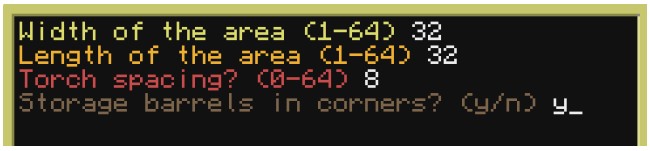
The screenshot shows an area maked out for walling off. The area is 30 x 30, and the wall will be 32 x 32

1. Start tk
2. Option 2. Forestry
3. Option 5 Fence or wall an enclosure

The help screen loads automatically:



Supply the width, length when asked



You can put torches on top of the wall.

As this wall is 32 blocks, an interval of 8 will be applied to add 4 per side.

Entering 0 here will disable torch inventory requests and attempts to place them

If using this as a re-plantable forest, barrels will be needed in the corners to store logs.

The inventory will request any type of fence or wall. You cannot mix types.

The turtle runs backwards most of the time, turning round only when obstructed, and places fence or wall in front. It does not compensate for areas of raised ground that could be used to bypass the wall, so it is up to the player to check the perimeter and make adjustments.

2.6 Harvest and replant forest

This function allows you to let a turtle run wild inside a walled area as described above and fell all the trees.

It will replant a sapling in the position the tree used to stand.

It is a sustainable method of gathering logs, and can even use the logs to refuel.

Place the turtle on any inside corner, usually on a barrel

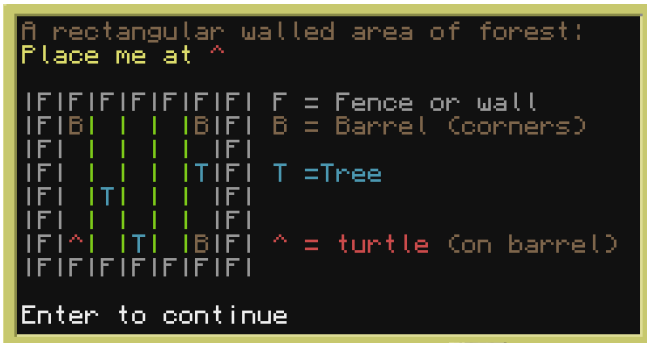
It will auto- orientate to line up with walls on the back and left side.

Start tk

Option 2. Forestry

Option 6 Harvest and replant forest

The help menu will auto-load:



The inventory will ask for a chest.

Press Enter if plenty of fuel,

otherwise add 1 for use when crafting planks from logs

Add a mixture of saplings to match those already in the forest (up to 64).

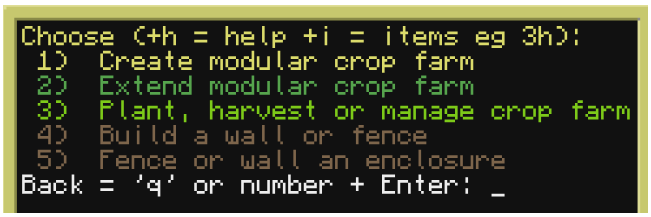
Every time it locates a barrel, it will sort the inventory and deposit any logs within.

If the function is interrupted by chunk unloading etc, re-starting it wherever it is should allow it to re-locate to a corner and continue.

It is NOT programmed to restart without player intervention, but could easily be adapted to do so.

Option 3 Farming

These are the sub-menu items:

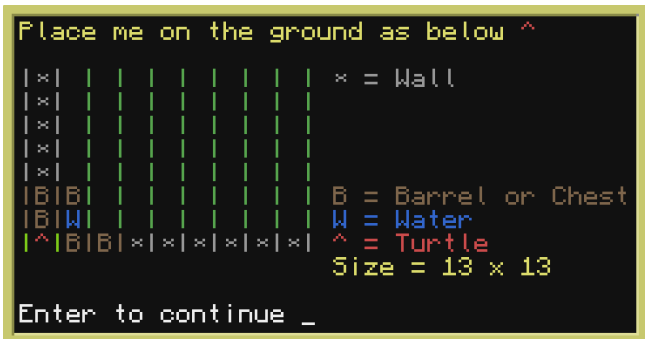


Option 3.1 Create modular crop farm

Place the turtle lower left corner

1. Start tk
2. Option 3
3. Option 1

The help screen auto-loads:



The inventory requires:

1. 64 stone
2. 128 dirt
3. 4 water buckets
4. 4 chests
5. 1 sapling (oak or spruce work best)
6. I crafting table

The completed farm ready for planting or extending:

The position of the turtle is already correct for extending the farm, either to the right side or to the front.

Use Option 2 Extend modular crop farm

If you want to plant the farm use the option Option 3 Harvest of manage crop farm.

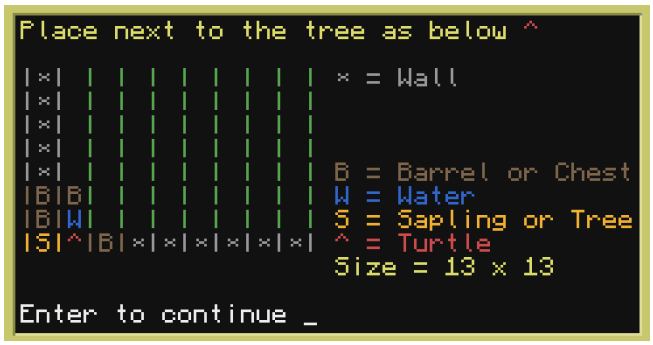
This will allow you to either do a one-off harvest, or setup the turtle to start automatically when the chunk is loaded.

Option 3.2 Extend modular crop farm

Place the turtle as shown above, on the left of the tree (or sapling). It will rotate to get into position so the facing direction is not important.

1. Start tk
2. Option 3
3. Option 2

The help screen auto-loads:



The next menu asks which direction to extend:

The inventory requires:

1. 64 stone
2. 128 dirt
3. 4 water buckets
4. 5 barrels or chests
5. 1 sapling
6. 1 crafting table

The completed extension (to the right):

The function first checks it's position and then travels to either the right or front of the existing farm.

If it does *not* meet a sapling or tree, it knows the farm has *not* been previously extended in that direction.

It then uses the original createFarm() function to make the extension.

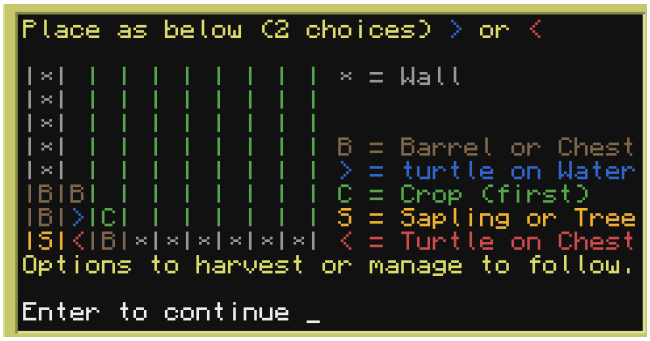
Option 3.3 Plant, harvest or manage crop farm

This option allows either planting or harvesting the farm.

Another option allows for setting it up to be managed automatically. This is useful at early game stage to accumulate lage numbers of crops for villager trading while you are working in (or under) the area.

1. Start tk
2. Option 3
3. Option 3

This auto-help screen shows.



The turtle can be placed:

1. On top of the water,

(ideally facing right where it can observe whatever crop is growing)

2. On top of the front chest/barrel facing the tree / sapling, which is the position it ends at after constructing the farm.

The next option is to plant / harvest or deal with auto-start. If it has not been enabled already the option to enable it shows.

Select option 1:

A diamond hoe is required for farming. If already in the buried chest / barrel it will be equipped.

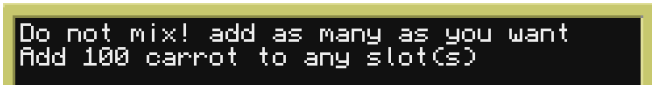
If there are no crops growing in front of the turtle then this message appears:

Example choose 3. carrot

A warning not to mix crops or seeds.

Only 95 are needed for a full field.

Any shortage is made up when the crop is harvested.



The tools are replaced when complete, with the diamond hoe being left in the buried chest / barrel.

Option 3.3.2 Manage crop farm

Proceed as above until you reach this menu:

```
Choose your option
 1)  Plant or harvest this farm complex
 2)  Enable automatic farm management
Type number (q to quit) + Enter _
```

Option 2 Enable automatic farm management

selecting ‘n’ will end the toolkit

```
This turtle can be configured to be
a dedicated farm manager.

It will then start automatically and
monitor the farm complex:

harvesting and replanting continuously.


Do you want to enable this? (y/n) _
```

Selecting ‘y’ will write startup.lua and start.txt:

```
Autostart enabled. Reboot to activate

Thank you for using 'survival toolkit'
> _
```

If you run tk again you get this instead:

```
Choose your option
 1)  Plant or harvest this farm complex
 2)  Disable automatic farm management
Type number (q to quit) + Enter
```

Selecting ‘n’ will exit tk

```
This turtle has been configured tostart
Do you want to disable this? (y/n) _
```

Selecting ‘y’ will remove the files start.txt and startup.lua

```
Autostart disabled. Reboot to activate

Thank you for using 'survival toolkit'
> _
```

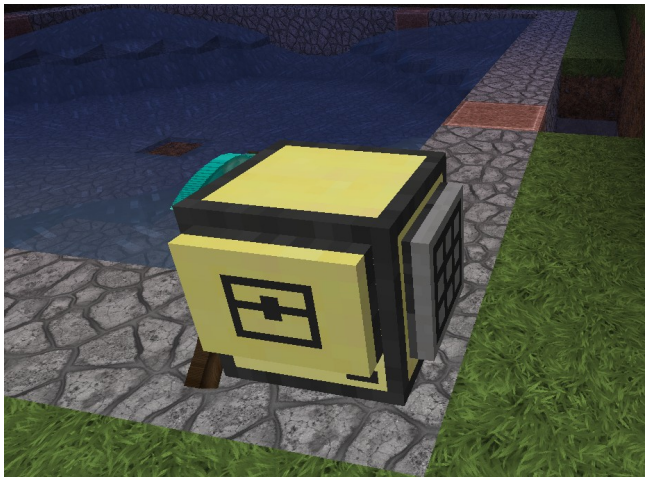
If enabled, leave the turtle in place and it will monitor the state of the crops in front of it. When ripe, it will harvest and replant the same crop that was originally planted.

The turtle will keep both diamond_pickaxe and diamond_hoe in the inventory, with at least 1 crafting table in the buried chest / barrel

Option 3.4 Build a wall or fence

This option uses part of the same code as Option 2.5 Fence or wall a forest. All you have to do is supply the length of the wall / fence and whether you want torches:

How about a 15 block fence on the water's edge?



1. Start tk
2. Option 3 Farming
3. Option 4 Build a wall or fence

The automatic help screen:

```
Build a fence or wall to chosen length.
Turtle goes BACKWARDS when started.
Start: length = 6, Turtle facing right
| |>| | | | | | > = Turtle
Finish:
| |F|F|F|F|F|F| | F = Fence or Wall
Enter to continue _
```

Enter length and torch spacing

```
Length of wall / fence (1-256) 15
Torch spacing? (0-64) 8_
```

Completed fence.

To undo this work ready for building a fence round the entire wall: f 15 d

```
Wall or fence completed

Thank you for using 'survival toolkit'
> f 15 d
Fuel level: 43170
Moved forwards 15 / 15
>
```

Option 3.5 Fence or wall an enclosure

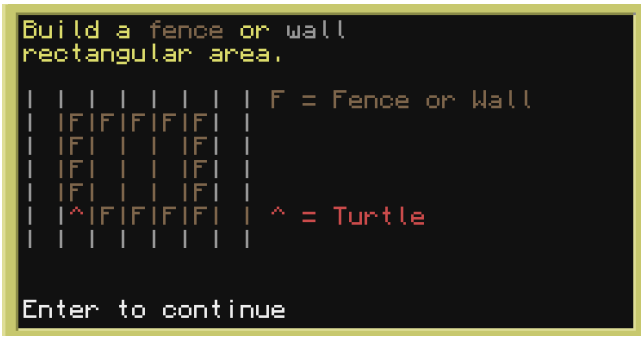
This option uses the same code as Option 2.5 Fence or wall a forest. All you have to do is supply fences or walls, and torches.

Starting with the same image as above, this time fence all the way round:

Start tk

Option 3 Farming

Option 5 Fence or wall an enclosure



Help screen

Enter width, length, torches

Finished fence

On rough ground the fence follows the contour the same as enclosing a forest demonstrated earlier.