Brief – Networked Resource Management

**What it is:**

An easy to use package that aids developers with making an online City Builder / Colony Sim. Contains pre-made components and systems so the user can spend more time on other game mechanics, rather than spending time building a system for the game to work on.

**Third party libraries:**

|  |  |  |
| --- | --- | --- |
| **Name** | **License** | **Version** |
| Mirror | Extension Asset | 66.0.9 |
| Animation Rigging | Unity Companion Package License 1.0 | 1.0.3 |
| Cinemachine | Unity Companion Package License 1.0 | 2.6.11 |
| Universal RP | Unity Companion Package License 1.0 | 10.4.0 |
| Input System | Unity Companion Package License 1.0 | 1.0.2 |
| 2D Sprite | Unity Companion Package License 1.0 | 1.0.0 |

**Game Idea:**

* Resource nodes generate resources like wood, food, and water
* Storage nodes hold specific collected resources to be used by player
* Player has set inventory space that shows what they are holding and how much, can free up space by putting resources in specific storage nodes
* Resources are automatically depleted from storage nodes over time for upkeep on house/firewood, hunger, and thirst
* Each player has own storage nodes but competes for shared resources
* Once a resource is depleted last player alive wins

**Resources:**

* Trees – Collect for wood and saplings
* Food – Trees produce apples, can harvest for food, cannot harvest if tree is cut down
* Water – Comes from lake/river/well

**Storage:**

* Wood – Is used as firewood
* Saplings – Used to plant trees, can also be used as firewood if specified by player but depletes quicker as firewood
* Food – Used to keep players hunger up, need trees for food
* Water – Used to keep players thirst up, if water source is depleted no more water, thirst depletes faster than food

**What will be contained in the Resource Management part:**

* Ways of collecting food:
* Hunting different animals – extension
* Gathering wild, natural, random spawning vegetation
* Farming food
* How big is a single node
* Does it naturally respawn
* Does it move. E.g. an animal – extension
* What does it look like
* Ways of collecting water:
* Well
* River
* Lake – extension
* Rain collection – extension
* How big is a single node – extension
* What does it look like – extension
* Custom natural resource spawning
* Spawn in clusters or as single node – tag if harvestable
* How close together they spawn – extension
* How rare it is
* Is it farmable
* Is it plantable
* How steep can the terrain it spawns on be – extension
* How big is a single node – extension
* What does it look like
* What resource/s does it drop
* How much of that resource does it drop
* Does it auto respawn
* Does it need a specific “fertility” to spawn, if so what level – extension
* Storage:
* What resources can use it
* How big can it be – model of it – extension
* Are the resources visualised on it
* How much can it hold
* What does it look like – the model used - visualised
* Buildings: – extension
* Are there buildings
* How big is it
* What does it look like
* Can it hold items
* Can it hold livestock
* Can it hold farmable resources
* Does it produce anything
* What’s its purpose
* Does it convert resources
* Does it take time to build
* Does it take resources to build
* Is there a max terrain steepness that it can be placed on, if so how steep
* Paths: – extension
* Are there paths
* How big is it
* What does it look like
* Does it take resources to build
* Is it a simple texture, or is it a model
* Can things be placed on top of it
* Can it go over water
* Can it tunnel through terrain
* Is there a max terrain steepness that it can be places on, if so how steep
* Agents: – extension
* Are there agents
* Do they carry out tasks automatically
* Do they have specific jobs
* The AI will have to be coded by user

**Mathematical equations:**

Research and list complex mathematical operations intended to use with Networking and systems within the Resource Management systems being created

**Advanced Algorithms:**

Research and list any advanced algorithms intended to use with Networking and systems within the Resource Management systems being created

**How the systems will be modular:**

**Resource attribute system:**

A scriptable object will be used to create and store all developer created resources and their attributes as a list.

The resources and attributes will be accessible from other components and scripts.

Diagram of how data in classes relate to each other.

Talks on teams, watch, off topic

**ITERATE ON AND EXPAND**

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Make unity window for list of in game items

Each player has list of what they have

Look up applications like this on unity asset store, or unreal

Target market – game jammers

Networking first, two players moving on plane, can see each other moving and bump into each other

Look at early Oxygen not included – markiplier

7 days to die

List of every object in game that has counter

Look at data oriented programming

How to mod terraria for ^ this information