

TradeSys

A trading and

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1 | About

WARNING:

- Updating TradeSys to 2.x will reset almost all options set up in TradeSys 1.x because the new system has a lot of changes and improvements such as goods items and manufacturing processes. As a result, it will remove any previous options. Fortunately TradeSys 2.x makes this process a lot easier and faster.

TradeSys is a trading and manufacturing system, but is capable of much more than that. TradeSys keeps track of all items in your game which can be bought, sold, collected or consumed. This means that TradeSys could be considered a monetisation system as well as an inventory system.

TradeSys 2.0 brings new features, massive performance improvements and more options to the market. This new version has been created from scratch, with all of the code rewritten in an attempt to squeeze every last drop of performance out of the system. As a result, TradeSys can have a huge impact on the gameplay without having huge development costs. The rewrite will also allow for many more new and exciting features to be added which simply weren't possible with the last version. This version is also more suitable for mobile platforms due to the performance benefits.

The editor interfaces for TradeSys have once again received a UI update. This makes it even easier, allows better organisation of goods and manufacturing, and more options thanks to more options being open for you to tweak! In addition, the majority of the options now have tooltips to explain how each option affects TradeSys. The TradeSys editors are designed to be simple to use and are some of the longest scripts included. This means the editors do a lot of extra hidden work to ensure that all of the options selected won't cause problems in your game.

1

About

P.S. I am excited to see your creations which use any version of TradeSys, so feel free to contact me using the email address above to show off your game, or post in the [forum](#)!

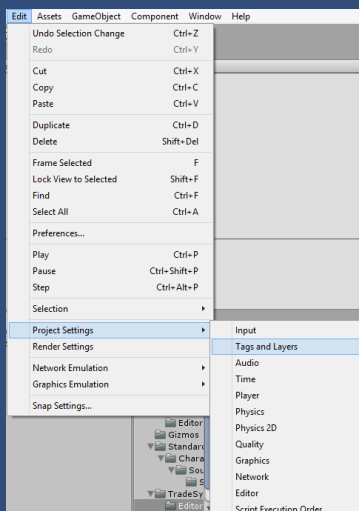
If you have purchased or updated to TradeSys 2.x but require some of the features not yet available, contact me on the email address with your invoice number and I will send you the latest 1.x version.



2 | Controller

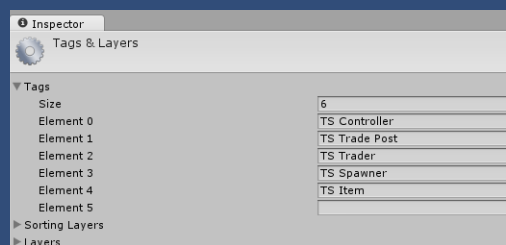
The first thing to do to get TradeSys to work is to add the correct tags. Without them added, it is not possible to add the Controller script or to get TradeSys to work.

In order to add new tags, go to Edit > Project Settings > Tags (Tags & Layers in later versions)



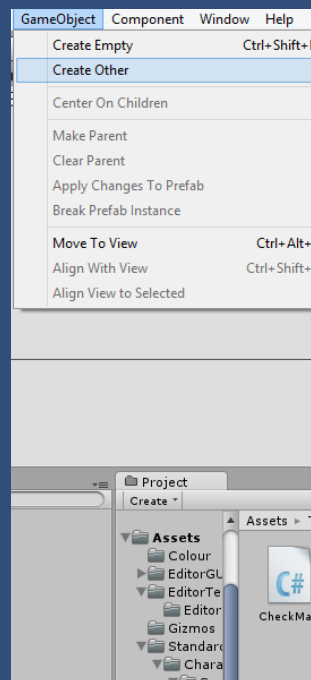
Here you can add the new tags. The tags are case sensitive and have to be called:

- TS Controller
- TS Trade Post
- TS Trader
- TS Spawner
- TS Item



Once they have been added, if you go to GameObject > Create Other > TradeSys Controller, it is no longer greyed out. Click this, and a new GameObject called `_TS Controller` will be added where you can set up all of the data for TradeSys. Everything is grouped into different sections, available from the toolbar.

The following pages will explain each tab.



2.1 | Controller - Settings

The settings tab contains everything which can affect how trades occur using TradeSys. Each one of the options is in a collapsible group. The following pages explain each in more detail.

General options do not affect the trades, but affect how things are shown in the editor.

Game options change how TradeSys initially works.

Trade options affect the number of trades and how the best trade is selected.

Pause Options allow you to change for how long and when a trader will pause.

Expendable Traders are traders which will be created at a post and sent to another where, upon arrival, will be destroyed.

Units have some sort of unit after the mass of each cargo item.

Groups and factions are added automatically using the TagManagement package.



2.1 | Controller - Settings

General Options

- Show group names: In the manufacturing item lists, show which group the item belongs to. If two or more items share the same name
- Smaller scroll views: Keep a toolbar and other information at the top and everything else in a scroll view
- Show trade links: Show all of the possible trade links in the scene view. The colours of the links indicate the factions

Game Options

- Update interval & frequency: Change how often TradeSys checks for possible trades. Decrease the frequency or increase the time interval to improve performance
- Generate at start: If you are creating the trade posts via code, disable this option and call `GenerateDistances()` in the controller. If the trade posts are defined in the scene and are not dynamically created, select this option. This is so that TradeSys can generate a distances matrix that is used in determining trades
- Allow pickup: This will allow you to set the GameObject prefab crates for each item and a collection of dropped items. This will also display the option discussed below
- Default crate: If you don't select a prefab crate for an item, this is the crate which will be used

Trade Options

- Closest posts: Select how many of the closest posts traders check to determine the best place to buy or to move to. Set this to 0 so that all of the trade posts are checked. See tips for more information
- Buy multiple: If the quantity of an item that the trade post has multiplied by this value is greater than the average number for that item, a trade post will want to buy that item
- Sell multiple: If the average quantity of an item multiplied by this value is greater than the quantity that the trade post has, then the trade post will want to sell this item
- Distance & profit weights: Use these to affect where the trader views as the best trade location. Profit has a positive impact while distance is negative. Expendable traders being enabled will hide the distance weight
- Purchase percent: The percentage of the selling price that a trade post is willing to pay
- Update prices: Update the price of an item each time a trader buys a single unit of that item
- Move option: Select what a trader does when there are no trades available at the current location

2.1 | Controller - Settings

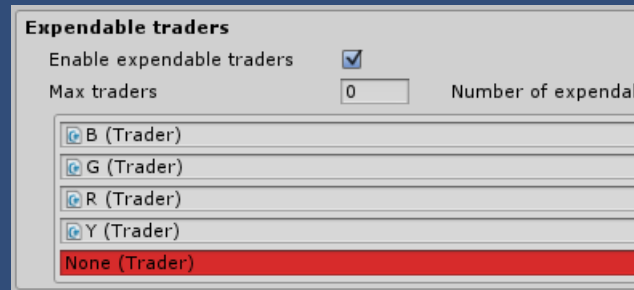
Pause Options

- Dropdown options:
 - Set time: All traders will pause for the specified time
 - Trader specific: The trader will pause for the time specified on each trader
 - Cargo mass: For each mass unit traded, the trader will pause for this time
 - Cargo mass specific: For each mass unit traded, the trader will pause for the specified time. Each type of good has a different time specified in each good
- Pause on entry / exit: Pause when a trader enters or exits a trade post for a specified length of time

Expendable Traders

If enabled, any standalone traders will not work. Set the maximum number of expendable traders to have in a scene at once. Set this to 0 for infinite, and add prefabs of traders. These will be the traders

that can be selected by TradeSys to use. The trader will be created at a post, unselected, and then be destroyed when it gets there. This does not involve the use of credits. Options involving credits will be hidden.



Units

Click the g, kg, t button to get the units to be set up as displayed in the screens. The g button is available because these units are probably the most likely to be used.

- Unit suffix: The ending of the unit that will be displayed e.g. 1 t
- Min: The minimum mass that the unit will be applied to. This will be equal to the minimum mass of the previous item
- Max: The maximum mass that the unit will be applied to

2.2 | Controller - Goods

Now it's time to set up the most important part of TradeSys: the goods which can be traded!

The total number shows the number of items over all of the groups.

Groups can be added to help separate your items and make them easier to sort.

The number shows the number in the selected group.

Click the add group button to add your first good.

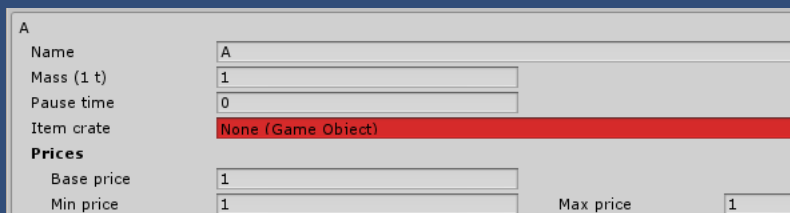
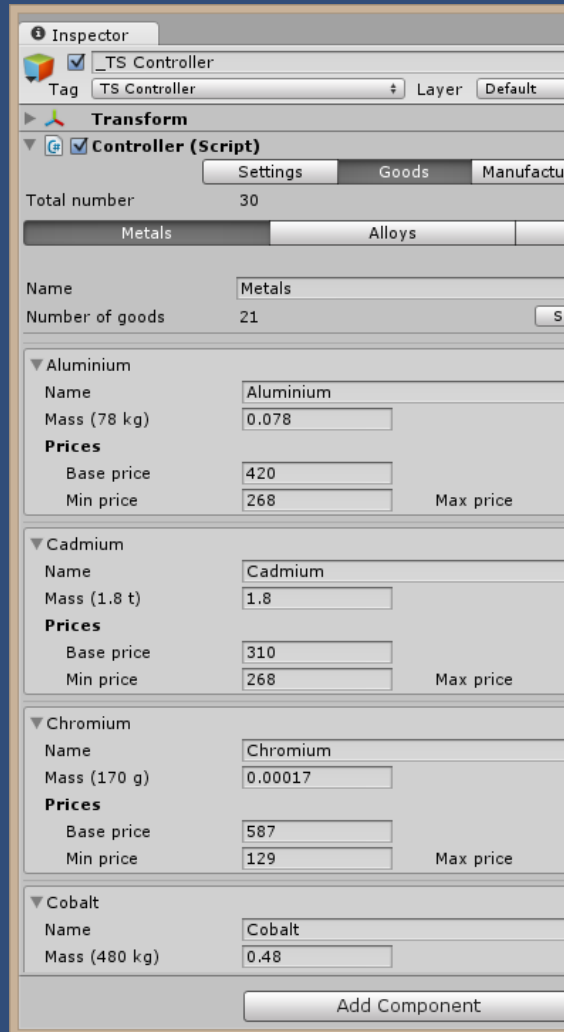
Options:

- Name: The name of the good
- Mass: The mass of the good. This is used to limit the quantity that a trader can carry. The mass is also displayed in brackets with the correct unit applied. The mass of an item with the correct unit is found in

called unit for each item, as this is calculated and sorted automatically by

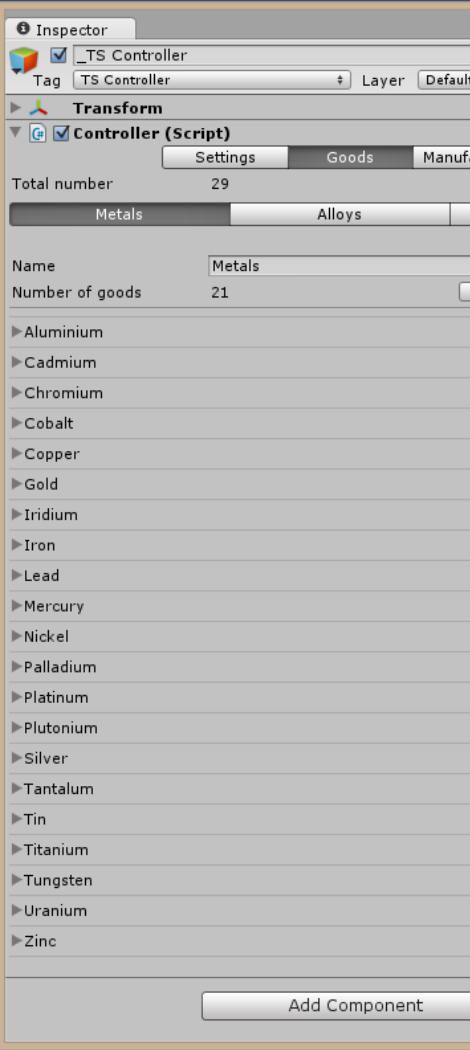
- Pause time: This will be displayed if the pause option is cargo mass specific you to set how long to pause per item
- Item crate: This will be displayed if allow

pickup has been enabled. It allows you to select an crate for the item. The button will locate a prefab in Resources/Group Name with the same name



2.2 | Controller - Goods

TradeSys 2 now allows you to sort the goods alphabetically, so the goods can be added in any order and then sorted with ease. Simply press the button found at the top of each group.



The expand and collapse all buttons mean that it is easier to view or hide all of the information for all of the goods at once.

On each good is a set of 5 options.



2.3 | Controller - Manufacturing

Another main aspect of TradeSys is manufacturing. This section will explain the options available.

Total number shows the total number of manufacturing processes that have been created.

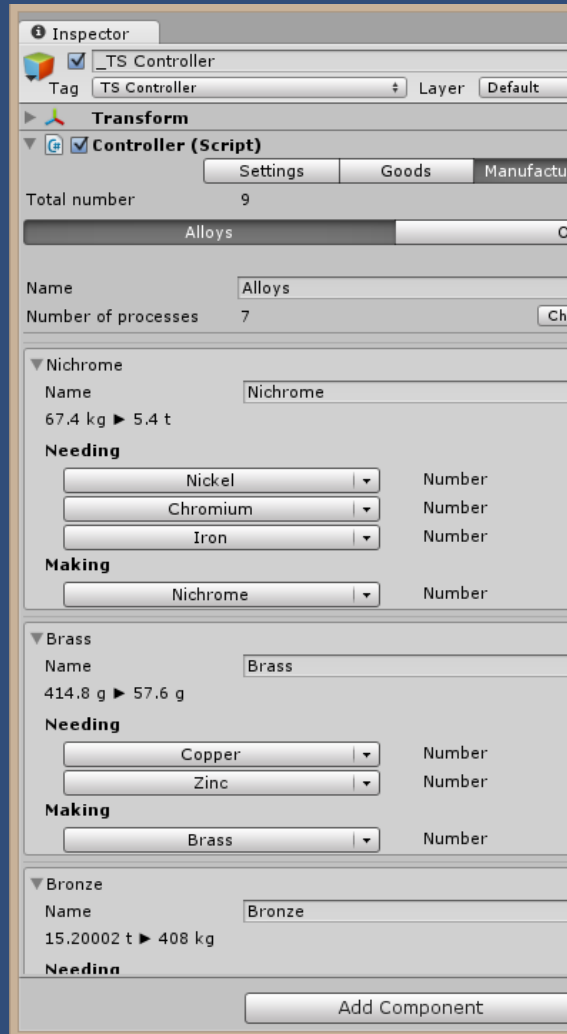
Groups can be added to separate the different sets of processes. This could be useful if a certain type of machinery allows the use of different manufacturing processes as you could have all of the processes that it does in one group.

Number of processes shows the number in the current group.

Click the add process button to add the first process.

Options:

- Name: The name of the process. Once set up, whenever there is manufacturing processes, hovering over the name will show information about what is needed and what is made as can be seen in the image below
- Needing / making: Select which items are needed or made in each process. If left blank to create a source or a sink of items
 - Dropdown options: Contains all of the different goods that have been created
 - Number: The number that are needed or made by the process



2.3 | Controller - Manufacturing

On each process is a set of 5 options.



- Up / down arrows: Move the current process up or down one in the list
- +: Add in a new blank process after the current process
- C: Duplicate the current process. The copy is placed after the current process
- -: Delete the current process

Check Expand

At the top of each group is a set of 3 options. The expand and collapse all buttons mean that it is easier to view or hide all of the information for all once.

The check button will make TradeSys calculate whether the number of an item will increase, decrease or stay the same, depending on the creations and cooldown times set up at each trade post. The value calculated is the profit that each process may make. This is a best case scenario, and should be less than displayed. If a process is showing a negative value, the process will never be profitable. At the bottom of the numbers, the total item number change and credit change is shown. The change is based on the cost of the manufacturing process set on each trade post and the window will update if you make a change and then click back onto it, making it easy to see what effects your changes have. If expendable traders is enabled, item pricing will not be shown.

Manufacturing check

Item numbers

Item pricing

NOTE: This can only be used as a guide because there may be pauses and greater times between manufacturing processes if items are not available.

As a result, there will be some variances, but will still be useful to give an idea of whether the numbers of an item is expected to increase, decrease or stay the same.

The number is the change in quantity of the item per second so a larger number means that this change is faster.

Nickel	Decrease (0.04)		
Alloys			
Brass	Increase (0.71)	Solder	Increase (0.39)
Bronze	Increase (1.10)	Steel	Increase (0.70)
Nichrome	Increase (0.27)	White Gold	Increase (1.27)
Rose Gold	Increase (0.15)		
Other			
Carbon	Decrease (0.46)	Catalytic Converter	Increase (0.31)
Machinery			
Smelter	Same		
Goods group 4			
Item change	Decrease (1.24)		
Credit change	Same		

Manufacturing check

Item numbers

Item pricing

This is showing the profit per time the manufacturing process of each item in this scenario, where the cost of items purchased to manufacture are set at the highest. As a result, the profits are likely to be less than displayed.

Any process that shows a negative value here will always have a negative value.

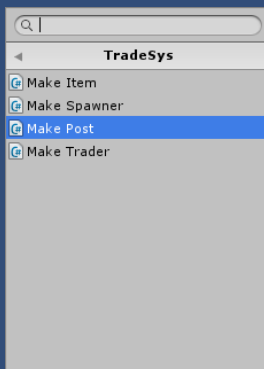
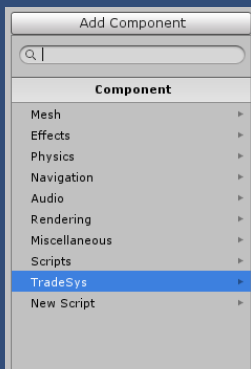
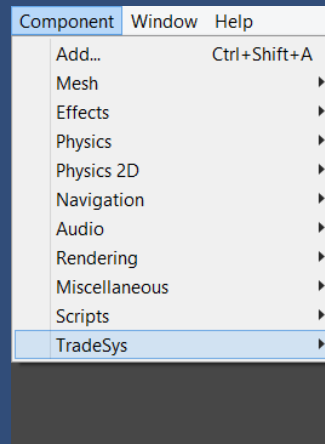
This assumes that the item prices are set automatically.

Alloys			
Nichrome	2484	White Gold	
Brass	860	Steel	
Bronze	1202	Solder	
Rose Gold	701		
Other			
Catalytic Converter	781	Alchemy	

3 | Trade Post

Adding trade posts can be done in one of two ways. One is by specifically creating them and the other is by using a script to create them. Here, creating the trade posts by adding them to the scene will be explained.

First, select a GameObject. Then go to Component / Add component > TradeSys > Make Post



The options and the number seen on the Trade Post editor will be what has been set up in the controller. For factions have been disabled, the option to at the trade post will not be displayed.

The show items vertically or horizontally option change how everything is displayed. This is so you can change the option to how you prefer to see the goods etc. displayed in the editor.

Options

- Show trade links: Show lines connecting the trade posts which are allowed each other in the scene view
- Custom pricing: Instead of having TradeSys automatically setting the price of a post, have these set to specific values
- Credits: How much money the trade posts starts off with. The credits limit the stock that a trade post can have, as it needs to be able to purchase the items from a trader. This will be hidden when expendable traders is enabled.
- Stop processes: If number limits for goods have been selected (See stock) manufacturing processes will result in the number of goods going beyond

3.1 | Trade Post - Groups & Fac

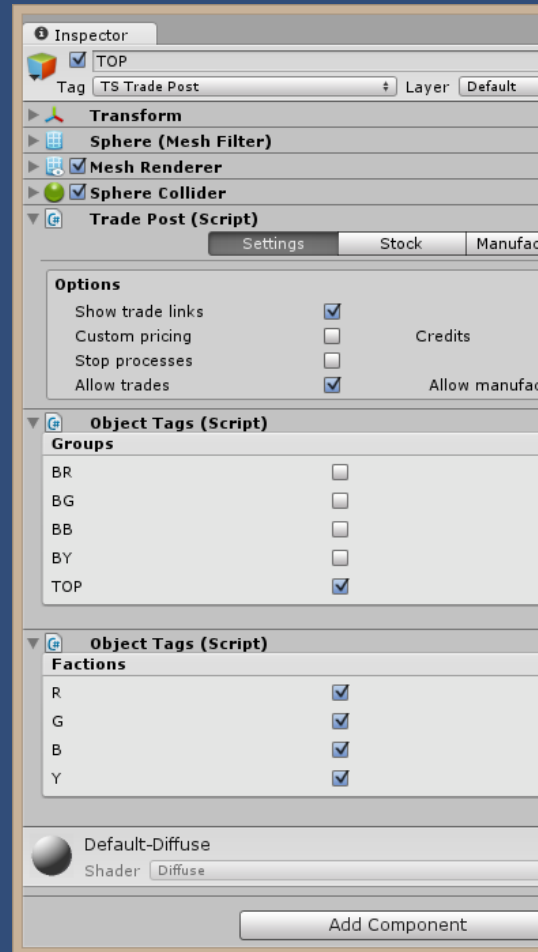
Groups and factions are handled by an ObjectTags component which will automatically be added to any Trade Post.

Groups

Select which groups the trade post belongs to. This needs to be set up in the controller. Select the show trade links option at the top to be able to view which trade posts it can trade with in the scene view.

Factions

Select which factions the trade post belongs to. This also needs to be set up in the controller. Select the show trade links option at the top to be able to view which trade posts it can trade with in the scene view. Factions also mean that the trade post can only trade with traders which have a mutual faction.



3.2 | Trade Post - Stock

The next step in setting up TradeSys is setting the stock information, found under the **Stock** tab.

Click on the group name (in bold) to hide or show the goods belonging to it.

Buy (B)

Select whether the trade post is allowed to buy the item

Sell (S)

Select whether the trade post can sell the item

Hidden (H)

If selected, it means that the item cannot be bought or sold at the trade post. It can still be used in manufacturing processes, so for example, one process could use it to create something which can then be sold. An item can be set as hidden and to be bought or sold.

By selecting one of the above options, the item is enabled at the trade post. This allows you to select the starting number and apply any limits

Limits (L)

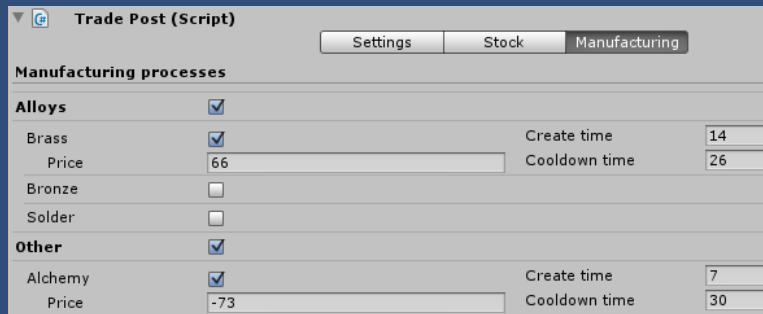
If selected, two more options will be shown to set the minimum and maximum the post should aim to have. If stop processes has been selected in the settings, processes which will take the quantity beyond these limits will be paused until

Trade Post (Script)					
Settings Stock Manufacturing					
Stock information					
Show p					
Metals					
Alloys					
Buy	Select all	Select none	Hidden		
Sell	Select all	Select none			
	B	S	H	L	
Brass	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Number
Min					Max
	2				
Bronze	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Number
Nichrome	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Number
Rose Gold	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Number
Solder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Steel	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Number
White Gold	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Number
Other					
Machinery					

3.3 | Trade Post - Manufacturing

Once the goods at the trade post have been sorted, it is time to sort out the manufacturing processes.

To enable a group, make sure it is ticked. To hide or show a process group once it has been enabled, click on the bold group name.



Trade Post (Script)			
Settings Stock Manufacturing			
Manufacturing processes			
Alloys	<input checked="" type="checkbox"/>		
Brass	<input checked="" type="checkbox"/>	Create time	14
Price	66	Cooldown time	26
Bronze	<input type="checkbox"/>		
Solder	<input type="checkbox"/>		
Other	<input checked="" type="checkbox"/>		
Alchemy	<input checked="" type="checkbox"/>	Create time	7
Price	-73	Cooldown time	30

A manufacturing process will only appear if the correct buy / sell / hidden option is selected. If these have not, then the post will not be able to follow the process. In the needing list of a process, the item must be marked as buy or hidden while the making list must be sell or hidden.

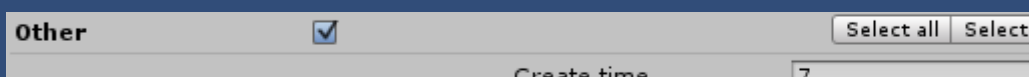
When you have enabled a process, extra options will be displayed.

Price: This is how much it costs the trade post to manufacture. If the value is positive, the post will receive money from manufacturing.

Create time: If there are enough of each item in the process, these items will be removed from sale, and manufactured. The create time is how long it is between the removal of needed items and the production of the items to make.

Cooldown time: This is how long a process must wait after completion to be ready to be made again.

Hover over the name of the process to show what the process needs and make

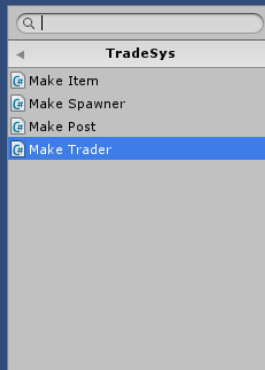
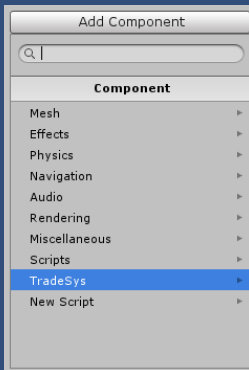


Other	
<input checked="" type="checkbox"/>	Select all Select none

4 | Trader

Adding traders can be done in one of two ways. One is by specifically creating them and the other is by using a script to create them. Here, creating the traders by adding them to the scene will be explained.

First, select a GameObject. Then go to Component / Add component > TradeSys > Make Trader

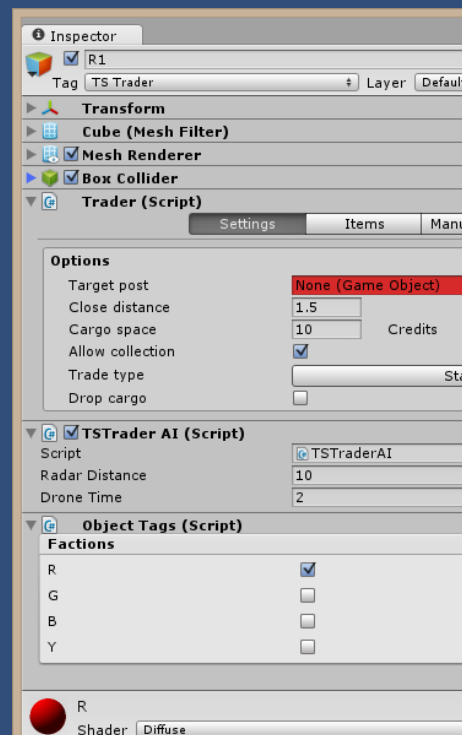
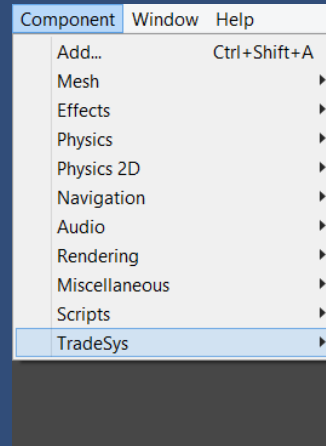


Options (Most of this group will be hidden if expendable traders have been enabled)

- **Target Post:** This is the starting post of the trader. At the start time, this will be the trade post that the trader is heading to. It will find the closest trade post to automatically find a trade post within the range and move the trader to the correct location. Or, specify a location and then press set location to move the trader there.
- **Close distance:** This is how near to a trade post the trader will stop.

needs to be before it is registered as having arrived.

- **Cargo space:** The maximum mass of cargo that can be carried by the trader
- **Credits:** How much money the trader has which it can use to purchase goods to trade
- **Allow collection:** Shown if allow pickup is enabled in the controller. It allows the trader to pick up items
- **Trade type:** This is what the trader does. Standard means it will go anywhere making trades. The other two options are depots, where the trader will always return to the start post after making a trade. Backhaul means that if there is cargo going back to the home post, it will take it, no backhaul means that this does not happen.



4.1 | Trader - Items, Manufacturing

Items

The items tab allows you to select which items the trader is allowed to carry. This affects which manufacturing processes will show up in the manufacturing tab.



Manufacturing

Setting up manufacturing for traders is the same as it was for trade posts. The trader must have enough cargo space, and the process will pause for trade



take and create the items. The process will pause for the cooldown time to ensure that items are not overproduced in the manufacturing process. The trader is at a trade post.

Info

Since 2.3, the trader script no longer includes the code to make the trader move. The AI has been moved into a separate script called TSTraderAI found in the AI folder. The trader will not do anything unless this script or a script of your own is loaded. The script is discussed in more detail on the relevant useful scripts page.

5 | Spawner

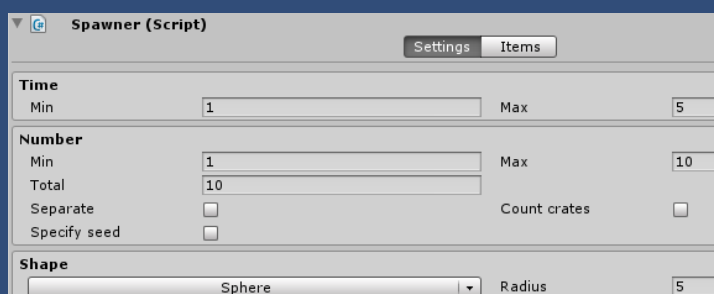
Spawners will randomly create generate items which your traders or players can collect. To add a spawner, it is the same procedure as for trade posts and traders. Select a trade post, then got to Component / Add component > TradeSys > Make Spawner

Time options

- Min / max: The minimum and maximum time between successive spawns

Number options

- Min / max: The minimum and maximum number of the item to spawn at once
- Total: The maximum total items to be at that spawner at once. Set this to infinite
- Separate: If enabled, and is spawning more than one item, put each into a separate crate. If disabled, multiple items can fit into the one crate
- Count crates: If separate is disabled, then gives the option to count the number of crates towards the total or the number of items at the spawner
- Specify seed: If enabled, gives an option to specify the seed number used for the random numbers are the same



The screenshot shows the 'Spawner (Script)' window with two tabs: 'Settings' and 'Items'. The 'Settings' tab is active. It contains several sections: 'Time' with 'Min' set to 1 and 'Max' set to 5; 'Number' with 'Min' set to 1, 'Total' set to 10, and 'Max' set to 10; 'Separate' and 'Specify seed' both set to 'No'; and 'Shape' set to 'Sphere' with a 'Radius' of 5. The 'Items' tab is also visible but not active.

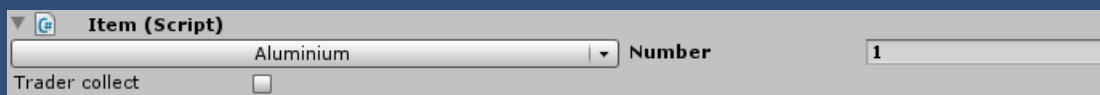
Spawn options

The dropdown list consists of 4 areas: Sphere, Circle, Cube, and Square. This is what area to spawn the items within. Each will have a radius or length option. The shape of the spawner will also affect the spawn area, meaning for example rectangular areas are possible. The trader collect option allows or disallows traders from collecting items that are spawned at this spawner

6 | Item

TradeSys 2 allows for the creation of items. These are the same as the items that are spawned, but where you have the object already in the scene, so can set them to a specific location.

To add, Select a GameObject, then go to Component / Add component > TradeSys 2 > Item. Or if you have item crate prefabs used for spawners, drag one of the prefabs into the scene.



Dropdown: allows you to select what type good the crate is. If show group name is selected in the controller, this will show the group name too.

Number: the number of this item inside the crate

Trader collect: select this if you want to make it possible for other traders to collect this item

7.1 | Useful scripts - CreatePostsTraders

CreatePostsTraders is a script which will create trade posts and traders by code. The use can be found in the scene called autogen. This script is located under the menu

This can be used as a basis to create your trade posts and traders if you wish to write your own code. It will need editing because currently it will create spheres for the trade posts and cubes for the traders. When you add this script or a similar script to create the objects, you will need to disable the generate at start option found in controller settings. The options. Empty GameObjects called “Posts” and “Traders” also need to be created. These are the parents for any generated. The options available from this script are detailed below.

Create Posts Traders (Script)	
Script	CreatePostsTraders
Seed	299792458
Number Of Posts	2000
Sphere Radius	200
Number Of Traders	200
Min	0
Max	30

Seed: This is the seed number used to create the posts and traders. It is specific to the scene and will not change the trade post locations

Number of Posts: The number of trade posts to be generated

Sphere radius: The radius of the sphere in which all of the trade posts will be generated

Number of Traders: The number of traders to be generated

Min/Max: The minimum/maximum number of each item a trade post can spawn

NOTE: The script no longer randomly selects groups and/or factions to be selected

7.2 | Useful scripts - Player

A simple player script is also included in TradeSys. The use of this script can be found in the scene called player.

This is designed to provide a basic demo of how to include a player in your game. It is designed to show you how to get the different variables that you may require in creating a player and to show how making purchases and sales may occur. Like all of the other included scripts, it is commented to help understand what the code is doing.

The example scene has an ObjectTags component added to the player. This has been set up with mutual factions and is linked with the script as the script will prevent the player from trading with factions where there are no mutual factions. This can be seen at the orange trade post.

The trade posts in the scene have another ObjectTags component which is called PostTags. This is used in a way where different posts can do different things. In the player scene, the magenta trade post is an estate agent, allowing you to purchase any of the coloured trade posts. This is done by the tag for the estate agent, another for the owned posts and a further one for purchasable posts.

In addition to post tags, use of the goods and manufacture groups has been included. The magenta trade post opposite any where you can purchase items sells another item named smelter. If you click on this, and go to an owned trade post, the player script has code which will allow you to purchase the trade post, and enables the manufacturing process group called alloys.

Note: items will not be manufactured as it only enables the group, further code is required for the selection and enabling of the individual processes.

There is a spawner located in the middle of the scene where you can collect items. The player script will do the same too. Behind the magenta estate agent is a collection of 5 items. These are there to demonstrate that TradeSys 2 allows for special items to be placed for certain locations.

Trans Mult: The multiplier used for translating the player

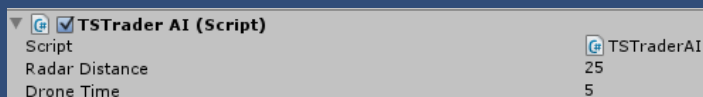
Rot Mult: The multiplier used for rotating the player

Close Distance: How close the player needs to be to the trade post in order for it to be able to trade there

7.3 | Useful scripts - TSTraderAI

Since 2.3, the AI code for having the traders move has been moved into this script.

Almost every line is commented to help you in creating your own AI, and any in-game methods which need to be called in order to make TradeSys work are marked. It is a basic script which should be expanded upon for use in a game.



TSTrader AI (Script)	
Script	TSTraderAI
Radar Distance	25
Drone Time	5

Radar distance: This is the distance that a trader can ‘see’ items. It is only used if item pickup has been enabled in the controller as this is used to find what items are within the radar distance.

Drone time: How long the trader should stay still for while collecting an item.

8.1 | Useful methods - Control

```
void GenerateDistances()
```

If you are using a script to create all of the traders and trade posts, this script must be called. TradeSys now works by calculating the distances at the start. This is why there is a delay before starting a game. However, as the distances only have to be generated once, everything from that point is then found in the distances matrix, TradeSys is a lot faster. Call this method later if you have made any changes to the trade posts found or the groups. Doing this however may temporarily freeze the game while the new matrix is calculated.

```
void EditProcess(List<MnfctrGroup> manufacture, int  
manufactureGroup, int processNumber, bool enabled, int  
createTime, int cooldownTime, int price)
```

OR

```
void TradePost/Trader.EditProcess(int manufactureGroup,  
processNumber, bool enabled, int createTime, int cool  
int price)
```

Edit the manufacturing process, enabling or disabling it or changing the create and cooldown times for traders or trade posts.

- **manufacture:** This is the manufacture list found in trade posts and traders
- **manufactureGroup:** The manufacture group the process belongs to
- **processNumber:** The number of the process in the manufacture group
- **enabled:** Set if the process is enabled or not
- **createTime:** How long it takes for the process to create everything in the group
- **cooldownTime:** How long before the process is allowed to be run again
- **price:** How much the process costs to run. Set to be negative to receive

8.1 | Useful methods - Control

```
TradePost PostBuyNearest (TradePost currentPost, int  
int itemID)
```

Find the nearest post to the current post that the particular item can be bought

```
TradePost PostSellNearest (TradePost currentPost, int  
int itemID)
```

Find the nearest post to the current post that the particular item can be sold to

```
TradePost PostBuyCheapest (TradePost currentPost, int  
int itemID)
```

Find the post that the particular item can be bought for the cheapest price.

```
TradePost PostSellExpensive (TradePost currentPost, i  
groupID, int itemID)
```

Find the post that the particular item can be sold to for the highest price.

All of the above methods use the same definitions for the following:

- `currentPost`: The current post that the player is at
- `groupID` & `itemID`: The group number and item number of the par

```
List<BuySell> PostWantBuySell (TradePost post, bool b  
Get the list of items that the trade post wants to buy or sell. BuySell has va  
groupID and itemID to specify the good.
```

- `post`: The trade post that the lists are to be found for

8.2 | Useful methods - Trade Post

```
void UpdatePrices()
```

When the player is in a trade post, the prices for items will need to be updated. The game does not do this automatically because it would be updating the prices for some trade posts unnecessarily.

```
void EnableDisableTradeMan(bool enableTrades, bool  
enableManufacture)
```

Set whether a trade post is allowed to make any sort of trades or manufacture items. If disabled, the trade post will not appear in the editor so that if enabled, all items will keep their previous values.

```
void AddRemoveGood(int groupID, int itemID, int number)
```

Add or remove goods to the trade post stock using the groupID and itemID of the good.

```
void EnableDisableStock(int groupID, int itemID, bool b  
sell, bool hidden)
```

Change the buy, sell or hidden options for an item at a trade post. Hidden can only be true if both buy and sell are both false.

```
void MovedPost()
```

Call this when you have moved the trade post. This is so that the distances can be recalculated efficiently.

```
void RemovePost()
```

Call this in order to remove the post from the game. It calls `DeletePost()` which has been modified to use object pooling rather than the current `Destroy(gameObject)`.

8.3 | Useful methods - Trader

```
void Trader.ChangeTraderHome(TradePost post)
```

```
void Trader.ChangeTraderHome(GameObject post)
```

Either one of these is used to change the home post ID of the trader. It is only used for expendable traders so you can change where they will return to.

```
void DropCargo(int number, int groupID, int itemID)
```

Drop the number of the current cargo specified. Will drop all items if this number is equal to the number carried.

```
void DropAllCargo()
```

Will drop all of the held cargo by calling `DropCargo`. If the drop cargo option is set to true, will drop the cargo, if not, will destroy the cargo. Drop single will drop the items in separate crates.

```
void DestroyTrader()
```

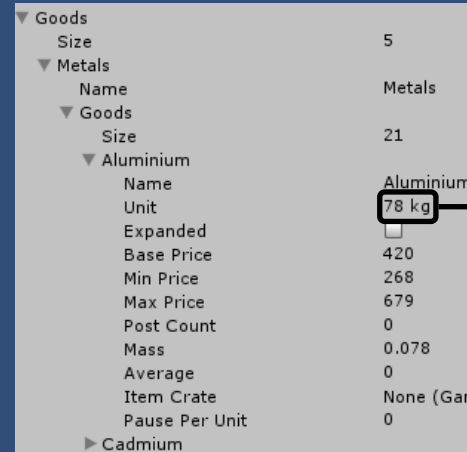
Destroy the current trader. Calls `DropAllCargo` and will then destroy the trader. `Destroy(gameObject)`

9 | Useful variables

TradeSys 2.x now includes some extra details in variables instead of having to use methods to get the data. These variables may not be obvious or used in the default player script, so have been listed here for ease of use.

```
string Controller.goods[int  
goodsGroup].goods[int  
itemNumber].unit
```

This will provide you with the string which contains the sorted mass and the correct unit, so will display as seen in the editors.

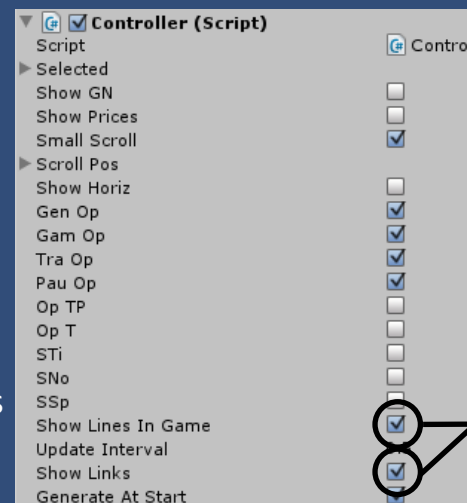


▼ Goods	
Size	5
▼ Metals	
Name	Metals
▼ Goods	
Size	21
▼ Aluminium	
Name	Aluminium
Unit	78 kg
Expanded	<input type="checkbox"/>
Base Price	420
Min Price	268
Max Price	679
Post Count	0
Mass	0.078
Average	0
Item Crate	None (Gar
Pause Per Unit	0
► Cadmium	

```
bool Controller.showLinesInGame
```

By setting this to true, the trade links will be displayed in the game view when the game is played. This can also be enabled by going into the debug menu of the inspector and selecting the option.

WARNING: If this is being tested in the editor, the game has been paused and show trade links has been checked, multiple instances of the same line will be created. This will not happen in a compiled game.



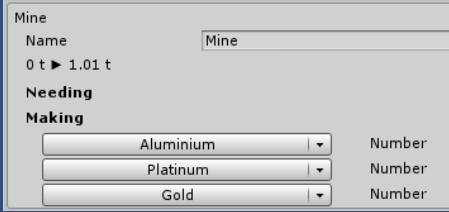
▼ Controller (Script)	
Script	Contro
► Selected	
Show GN	<input type="checkbox"/>
Show Prices	<input type="checkbox"/>
Small Scroll	<input checked="" type="checkbox"/>
► Scroll Pos	
Show Horiz	<input type="checkbox"/>
Gen Op	<input checked="" type="checkbox"/>
Gam Op	<input checked="" type="checkbox"/>
Tra Op	<input checked="" type="checkbox"/>
Pau Op	<input checked="" type="checkbox"/>
Op TP	<input type="checkbox"/>
Op T	<input type="checkbox"/>
STi	<input type="checkbox"/>
SNo	<input type="checkbox"/>
SSp	<input type="checkbox"/>
Show Lines In Game	<input checked="" type="checkbox"/>
Update Interval	
Show Links	<input checked="" type="checkbox"/>
Generate At Start	<input type="checkbox"/>



▼ Manufacture	
Size	2

10 | Tips

This page contains some ideas on other ways TradeSys can be used.

- Manufacturing processes do not need to have needing or making items. This means that you can have sources and sinks in your game without any further code! For example, a mine may extract some metals, but not require the use of any items, thus no items are specified in the needing section.
- 
- More industrialised trade posts will be able to produce items faster, and may have a cooldown before it can manufacture again. Use the create and cooldown times to create this effect. Making some trade posts have much higher times than others. It may also make some items cheaper, and this is possible by reducing the price.
 - Traders may be carrying perishable items. This is possible by using manufacturing on the traders. For example, a trader may be carrying food, thus by adding a manufacturing process the food can be turned into rubbish or disappear by setting up a manufacturing process and setting the times.
 - Change the code inside `Controller.CalcDistance` so that the distance between trade posts is properly calculated as this method only finds the straight line distance which may be incorrect for your game.
 - If you are wanting to edit trade post groups or factions a lot, then setting the closest posts may give improved performance. Setting this to 0 will mean that getting the distance is quicker. However, more best trades need to be calculated, so may be slower here. A specific number will make the best trades faster, but calculating the closest posts may be slower. Trying out different values will be required to see what gives the best performance for your game.
 - In some places, TradeSys uses `Destroy(gameObject)`. These could be changed to use an object pooling manager instead. These are found in:
 - `Item.Collected()`

VERSION	CHANGES
V1.0	<ul style="list-style-type: none">Initial release
V1.1	<ul style="list-style-type: none">Traders have cargo size and items require mass specified so traders cannot trade more than a specified number of items.Traders can now take multiple types of item as long as they all go to the same location.Traders can be set as expendable, so will be created at the required station and destroyed on arrival.Can disable items at posts so will not be traded or manufactured.UI tweaks:<ul style="list-style-type: none">Can hide or show prices at trade posts.
V1.2	<ul style="list-style-type: none">Traders have custom inspectors. This also includes buttons for post finding, location, or location setting based on the target post.Goods now have units which are based on the mass of each item.Can check the numbers of items expected as time increases through manufacturing.Added a fully commented player script and created a new scene with this script. Added a fully functioning shop mode, and click on a trader to view info about the trader.Added a post enable/disable method.Added a method for easily allowing trade of an item at trade posts.Fixed the pricing of items as before any items being carried would be ignored and prices would recount each time. Now this does not happen, so should improve performance.UI tweaks:<ul style="list-style-type: none">Can now view the items to enable/disable at trade posts increasing/decreasing the number of items vertically.Select all/select none on enable/disable at trade posts.Expand all/collapse all on goods and manufacturing in the controller.

VERSION	CHANGES
V1.3	<ul style="list-style-type: none">• Spawners have been added, and the code to allow traders to collect drops to continue to the correct trade post, and added a DropItem method for traders.• Groupings. It is now possible to group trade posts together, so that not every trade post trades with every other one.• Added an option to change the update frequency of the post prices, and price of items to try and improve performance.• Added in an overview to controller, showing information about groups, goods, and manufacturing.• Can view trade links, spawn sphere radius and radar sphere in the scene view.• Removed speed multiplier from traders - this was part of the demo code, and scales of everything in the scene view so it is no longer needed.• Fixed bug where items could not be added to manufacturing processes while a trader was being present.• Fixed issue where it was not possible to set the maximum number of export items to 0, so could not be infinite• Some other performance enhancements.• Massive UI changes:<ul style="list-style-type: none">• Controller and trade posts have a toolbar to make editing easier.• Boxes have been added to many editor windows to make groups more visible and clearer.• Changed style of remove buttons, drop down lists and horizontal / vertical sliders to improve experience
V1.4	<ul style="list-style-type: none">• Added factions, with both trade posts and traders having faction options.• Changed group selection so uses checkboxes like items.• Option to view trade links while trade posts selected has been added, making it easier when editing groups and factions.

VERSION	CHANGES
V1.5	<ul style="list-style-type: none">• Spawners now don't spawn inside each other.• Spawners have more options - can now select what shape the spawn area rotation.• Pause time options, so can change what the pause time for traders is, and pause.• Controller has a new tab when in game, showing extra information.• Manufacture pause has been edited. There is now also a cooldown time, and works has been edited.• Target posts for prefabs not found in hierarchy now gets disabled rather than hidden.• Can now add all trader prefabs into the expendable trader list, so no more deleting the prefabs.• Improved performance of the controller editor for large projects - options for prefabs each time.• Fixed player script, where incorrect numbers shown if the trade post does not have items.• Added ability to select groups in the player script in game.
V1.5.1	<ul style="list-style-type: none">• Can now use TradeSys in versions of Unity after 4.0.0!• Fixed trader stop time, so will stop for the correct length of time.
V1.5.2	<ul style="list-style-type: none">• Fixed any warnings resulting from API updates.• Uses TradeSys namespace to help prevent any name conflicts

VERSION	CHANGES
V2.0	<ul style="list-style-type: none">• Whole system has been rewritten from scratch.• Manual has been rewritten from scratch with the update logs being the only thing the same!• Massive performance improvements.• Goods and manufacturing processes can now be set up in groups, useful for things like trade posts.• Goods can be sorted• Can move goods and manufacturing processes up, down and can duplicate them• Duplicated manufacturing items are highlighted in red• Manufacturing check will now check item pricing, stating if a manufacturing process will never be profitable• Custom pricing on Trade Posts• Many more options such as route options — can now edit what influences profit or distance travelled• Greater undo support and multi object editing• Can now select if an item is allowed to be bought or sold at a Trade Post. Can also be hidden to allow an item to be manufactured and used in another process.• Adding a controller found under GameObject > Create Other > TradeSys Controller. No longer have to drag scripts as it is automatically done• Adding Trade Post and Trader scripts found under component menu• Can now have number limits on goods at trade posts• Now possible to select which goods a trader is allowed to carry• Further UI improvements:<ul style="list-style-type: none">• Can now have the TradeSys toolbar at the top with everything else so it is always there• Can now click on the names of options in lists to show details, not just the first one• Items in lists now much more obvious

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Update Log

VERSION	CHANGES
V2.1	<ul style="list-style-type: none"> • Traders can now have manufacturing processes • Can now enable or disable a manufacturing group • Player scene now has demonstration of post tags, with the ability to buy t • Player scene has examples of other uses for goods and manufacturing gro • allowing machinery to be fitted to an owned trade post • Changed variables. Some moved to a custom variable others have been c • Added tips page to manual • GUI improvements: <ul style="list-style-type: none"> • Trader inspector has the same style as controller and trade posts • Rearranged the process move buttons so is in the same order as for • Moved the buy, sell and hidden options for trade posts into the sto • Clicking on the name of the group will now hide or show available o • using foldouts • Horizontal or vertical options changed to use buttons • Fixes: <ul style="list-style-type: none"> • Issue regarding player buying and selling items • Trading and as a result more trades occur • Traders will now go to random posts where both posts are in the sa • faction
V2.2	<ul style="list-style-type: none"> • Edited the buy / sell list updates so is more efficient • Uses sqrMagnitude instead of Vector3.Distance, so improving starting per • Disabling trades at a trade post or changing factions or groups will make a • heading to the trade post head back to where they stated from • Can set the closest posts to 0 so will check best trades at all posts • Renamed EnableDisable at trade posts to EnableDisableTradeMan

11

Update Log

VERSION	CHANGES
V2.3	<ul style="list-style-type: none"> Added in spawners. This includes a script and editor code for items too Moved trader AI to a separate script so is more obvious as to what should Bug fixes: <ul style="list-style-type: none"> Fixed where item shuffling gave an error After deleting an item, going onto the manufacturing tab was not po Sorted manufacturing mass for processes containing deleted items
V2.4	<ul style="list-style-type: none"> Can now only have one controller in the scene at a time Spawners will now show the circle spawn area Traders will only go back to their start post if the group or faction is incor trade post's has changed. Before they would go back even if they could st Can now select allow trades and allow manufacture in the inspector and r the debug menu / code Added ability to collect items to the player script Added option to select if the items spawned are able to be collected by a New methods: <ul style="list-style-type: none"> New method to allow trade posts to be moved after the start Method to allow new trade posts to be added Method to delete trade posts Bug fixes: <ul style="list-style-type: none"> Fixed when no units defined and a manufacture mass is meant to be as 1 Bug giving errors produced by TradeSys when playing the game in e selecting a trade post Issue where spawned items would be included in item averages twi

VERSION	CHANGES
V2.5	<ul style="list-style-type: none">Added in depots including a method to change the home post IDAdded in expendable tradersCheck window will automatically update, making any changes made easier to seeNew methods:<ul style="list-style-type: none">Method to destroy the traderMethod to drop all the cargo or a single itemMethod to make changing the enabled factions for traders easier
V2.6	<ul style="list-style-type: none">Manufacturing processes can cost credits. This is set individually in each item and traderCheck manufacturing window will also show the credit changeAdded new move options for when a trade post has nothing for a trader<ul style="list-style-type: none">Items per distance - go to the post with the maximum of the item's buy/sell divided by distanceBest trade - calculate the best trades for the reachable posts and choose the very bestSlight performance improvement by removing a couple of unnecessary group checks
V2.7	<ul style="list-style-type: none">Moved groups, factions and post tags to a new package, TagManagerCheck manufacturing button is disabled if there is an undefined itemFixed issue where traders would go to any post in the same faction if none was selectedExpendable traders will give an error if there are any null values when the game startsAdded new methods in the controller script: