



The Player Inventory System is designed to make implementing an inventory system in your game simple. The Player Inventory System was developed to replicate yet improve upon the functionality of the inventory system in an existing and very popular game. The Player Inventory System will allow you to add this functionality to your game with ease.

This document explains how to set up the Player Inventory System in its default configuration, an overview of how the system functions and some handy tips on ways you can use it in your games.

[Full documentation can be found on line here.](#)

Setting up the Player Inventory System in Your Game

The Player Inventory system is designed to work with best in conjunction with Unity's First or third person Character controllers.

To add The Player Inventory system to your game Follow these steps;

- 1: Add the InventorySystem prefab to your scene. This can be found in the prefabs folder. There can be only one Inventory System per scene.
- 2: Add a FirstPersonController or ThirdPersonUserController component to your player object if you don't already have one.
- 3: On your player object add a ItemPickerUpper component. This provides functionality to pick up items and is only required if your player needs to do so. Depending on how your player is set up you may need to change the settings on this component for it to function correctly within your game. The default settings work well with Unity's standard character controllers.
- 4: Drag your player gameobject in to the Player value of the InventoryController component on the InventorySystem Object. If your player object is tagged 'Player' you can skip this step. The InventoryController will find and include your player at start up.

How it Works..

Inventory items

An Inventory Item is any object that the inventory can hold. To simplify creation of your games items a script-able object is provided to hold all item details. The Item Catalog is located by default in the root folder of the Player Inventory System. Selecting the Item Catalog in unity will display the full list of prepackaged items in the inspector. Each item has its own listing with a number of settings associated with it. Below are details of these settings;

- **Name:** The name of the item. This will be used in game to refer to this item. This should be unique.
- **ID:** This is the item id and must be unique. This is used in code to reference this item. It is also used in crafting recipes.
- **Description:** A short description of the item.
- **Sprite:** The sprite that will be used to display the item in slots.
- **World Prefab Single:** This is the prefab that will represent a single instance of the item in your game world.
- **World Prefab Multiple:** This is the prefab that will represent a stack of the item in your game world. If the Item is not stack-able (stack count = 1) then you can ignore this.
- **Equipped Prefab:** The prefab that will represent the item when equipped on the player or placed in the world.
- **Item Type:** This defines what type of item this is. Item Types and how they perform are listed later in this text.
- **Slot Type:** This defines what slots this item can be placed in. Inventory allows the Item to be placed in any slot except all other slot types. Items marked as any other slot can be placed in inventory slots and the selected slot type ONLY. For example if you set an objects slot type to HEAD, that item can be placed in inventory slots (inventory panel slots, item bar slots, crafting slots and chest slots) but only the HEAD slot of the character panel.
- **Max Stack Size:** This defines how many of this item can be stacked in a single slot.
- **Recipe:** The crafting recipe for this item. See Crafting section below for more information.
- **Craft Count:** The number of items that the item's recipe will create. See Crafting section below for more information.
- **Max Durability:** The max durability of this item.
- **Damage:** The damage increase/decrease this item adds to the players stats.
- **Speed:** The speed increase/decrease this item adds to the players stats.
- **Health:** The health increase/decrease this item adds to the players stats.
- **Stamina:** The stamina increase/decrease this item adds to the players stats.
- **Mana:** The mana increase/decrease this item adds to the players stats.
- **Armor:** The armor increase/decrease this item adds to the players stats.
- **Intelligence:** The intelligence increase/decrease this item adds to the players stats.
- **Dexterity:** The dexterity increase/decrease this item adds to the players stats.
- **Luck:** The luck increase/decrease this item adds to the players stats.

Item Catalog

You can either edit the provided item catalog's entries create you own from scratch. As well as being a good way to keep all your items in order, the item catalogs allow you to set up different sets of items for different parts of your game if that what you require.

To create a new Item Catalog, in the editor right click InventorySystem folder in the project view and select Create>SO_ItemList. Then rename the list to whatever you want. You must then drag this new list on the to the Item Catalog property of the InventoryController component.

NOTE: The first entry in any item catalog MUST be named NULL and have an ID of 0 (zero). This is a place holder and represents the blank slots on a crafting recipe. Failing to set this correctly will prevent crafting from working correctly.

Panels

There are 5 panels provided with the Player Inventory System. These are;

- Inventory Panel <E or Tab>
- Character Panel <C>
- Crafting Panel <V>
- Chest Panel <Mouse 0>
- Item Bar

With the exception of the Item Bar these panels can be toggled by the player using the keys noted in the list above. By default the Item Bar can not be toggled. Though a method to do so is provided in the InventoryController class. The Chest Panel can only be displayed when the player moves a chest to the center his/her view and clicks the left mouse button.

Panel toggle keys can be set via the InventoryController competent on the InventorySystem object.

Opening any panel will disable player movement and display the cursor.

ESC will close all panels that are open, hide the cursor and enable player movement.

Moving Items

Items can be picked up and moved between slots on any panel by clicking on the item in the slot and then clicking on the destination slot. If the destination slot currently has an item in it then that item is swapped with the item the player is currently holding. Provided the held item is compatible with the slot.

Slots

Each panel contains a number of slots that are capable of holding one item. Items can be stacked in a slot if they are the same. The number of items that can be stacked is defined in the Item Catalog. See the **Inventory Items** section above for more details.

By default the inventory is set up with 24 slots, the item bar and crafting panel with 10 and the character panel with 6. Chest panels differ depending on the number of slots assigned when the chest is created.

Slots display the sprite (as defined in the Item Catalog) of any item it contains. As well as the number of that item stacked there. Items that are single (or can not be stacked) will not display this number. If the item has a MaxDurability value greater than zero, the slot will display a bar to indicate the items durability value.

If the player moves the mouse over a slot, the slot will be highlighted. The color of the highlight will vary depending on the following;

- If the slot is empty and no item is being held: Yellow
- If the slot contains an item and no item is being held: Yellow
- If an item is being held and the held item can be placed in the slot: Green
- If an item is being held but the held item can NOT be placed in the slot: Red

The colors noted above are the default and can be changed on the Slot Prefab located in the Prefabs/Slots folder.

A slot can only hold items that have a matching slot type set in the Item catalog. A head slot can only hold items with slot type head. Most slots have the default slot type setting of inventory with the exception of those on the character panel and the crafting panel's output slot.

Items can only be placed in slots that are marked as SLOTTYPE.Inventory or that match the items set slot type in the Item Catalog. For instance a stack of sticks can not be placed on the head slot of the character panel as that slot has a slot type of head and the sticks have a slot type of inventory.

Slot Interactions

A slots reaction to interaction may differ depending on which panel it is on. Below are the details of what a slot will do by default.

- Left click any slot to pick up the item or stack of items it holds.
- Left click an empty slot to place the held item(s) in to the slot.
- If you left click on a slot that contains the same item as you are holding, the item(s) you are holding will be combined with those already on the slot. Any excess will remain in hand. However, If the stack being clicked is already full, the two will be swapped.
- Right click a stack of items to pick up half of the stack.
- Right click a slot to place one of the held item(s) in to the slot.

<Shift> Click will move the contents of the clicked slot depending on the following. Note that 'space' in the following includes that left in other stacks of the same item. Items will fill these stacks first.

- If the slot <Shift> clicked is on the Item Bar, Inventory Panel or chest panel and the slot contains a wearable item (clothing/weapon) and the character panel is open then the item will be moved on to the character (swapping with exiting item if there is one)
- If the slot <Shift> clicked is on the character panel and the slot contains an item and the Inventory panel is open the item will be moved to the inventory if there is space. Else it will be placed on the item bar if there is space. If there is no space on the item bar or inventory nothing will happen.
- If the slot <Shift> clicked is on the item bar and is NOT a wearable item the item will be moved to the inventory panel if there is space. If there is no space in the inventory nothing will happen.
- If the slot <Shift> clicked is on the inventory panel and is NOT a wearable item it will be moved to the item bar if there is space. If there is no space on the item bar nothing will happen.
- If the slot <Shift> clicked is on the chest panel and the inventory panel is open then items are move to the inventory panel if there is space. Else they are sent to the item bar if space there. If neither have space nothing will happen.
- If the slot <Shift> clicked is on the crafting panel, items will be placed on the item bar if there is space else in the inventory if there is space. If neither have space nothing will happen.

Hover the mouse over a slot and press 1 through 0 to move the item to the corresponding slot on the item bar. If the item bar slot already contains an item the two will swap places so long as the items are valid for the appropriate slot. If not this function will do nothing.

Dropping Items

There are a three of ways a player can drop and item. These are listed below. But no matter which method is used the Player Inventory System will spawn a prefab to represent the item in the game world. There are three world prefab values that can be set on the time in the Item Catalog. See the **Inventory Items** section above for details on these

Item Drop Methods

- Pick up an item from any slot and LEFT click out side any panel to drop the item or stack.
- Pick up a stack of items from any slot and RIGHT click out side any panel to drop one item from the stack.
- Select a slot on the Item Bar and press the drop key. Q by default.

Picking up Items

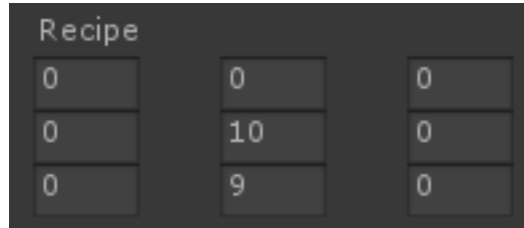
Providing the prefab for the item to be picked up has an ItemPickup component and the player object has the ItemPickerUpper component, The player simply walks over the item to pick it up. The ItemPickerUpper will try and place the item in the ItemBar first. If there is no space there it will try the players inventory.

Crafting

Each item in the Player Inventory System can be assigned a crafting recipe that allows the player to craft them in game using other items.

Each item in the Item Catalog has a recipe section. The nine boxes there represent the nine slots on the crafting panel.

To define a recipe enter the item ID of the ingredients in to the required box as shown in the image below.



The image shows a 'Recipe' panel with a 3x3 grid of input boxes. The values in the boxes are: Row 1: 0, 0, 0; Row 2: 0, 10, 0; Row 3: 0, 9, 0.

This image shows the recipe for a torch.

In game the player can place the ingredients in to the crafting slots in any location. As long as the pattern the ingredients create matches the recipe defined. The images below show some possible arrangements of the ingredients to make a torch.



This method of crafting potentially allows for an initiate number of items to be crafted. Provided you set each item in the item catalog and define a unique recipe for it.

Items that are generated buy a crafting recipe ill be shown in the output slot on the crafting panel. Although the player can stack as many items as he/she wishes in the crafting Panel, the output slit will only show the number of items that one the recipe will create if all stacks contain only one item. For example the images above show the two stacks contain 12 items but the output slot will only display 4. As that is what would be generated if each item only had one in is stack.

Repeatedly clicking the output slot will load the created items in to the players hand. Allowing the player to then drop or place them wherever he/she wants.

Holding down shift and clicking the output slot will cause the crafting panel to generate as many items as the stacks will allow or the total number that the free space in both the players inventory and item bar will allow. Which ever is least.

Craft Count

Below the recipe there is the Craft Count property. Set this to the number of items the recipe will create.