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Introduction

The Mining System by Unreal Toolkit is a fully modular and highly customizable system designed for seamless integration into any Unreal Engine project. It comes with a basic inventory setup that can be easily swapped for your own inventory system, ensuring smooth implementation into existing gameplay mechanics.

Mining mechanics are fully customizable, supporting the option for both per-hit harvesting and experience gain as well as on-empty resource collection. The system also includes optional skill levels, which can be toggled on or off to match your game's progression system.

The system provides immediate functionality and prototyping capabilities with six ore nodes, each with a corresponding harvested ore item, as well as three pickaxes and five additional loot items (three crystals and two rocks). These included assets allow you to start using the system right away, while the data tables are designed for easy expansion, making it simple to add custom nodes, ores, tools, and loot.

With intuitive settings and plug-and-play functionality, the Mining System provides a complete foundation for mining mechanics while remaining flexible for customization and expansion, integration is simple and efficient.





Quick Start Guide

Follow these steps to quickly set up and test the Mining System in your project:

1 Migrate the Mining System into Your Project

- In the **Content Browser**, locate the **Mining** folder included in the asset pack.
- Right-click the folder and select **Migrate**.
- In the pop-up window, ensure all necessary assets are selected (**Uncheck the Demo Folder**), then click **OK**.
- Choose your project's **Content** folder as the migration destination.
-

2 Add Mining Functionality to Your Player Character

- Open your **Player Character Blueprint**.
- In the Components panel, click **Add Component** and search for **AC_Mining**.
- Select **AC_Mining** to add it to your character.
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3 Place a Mineable Ore Vein in the World

- In the **Content Browser**, locate **BP_OreVein**.
- Drag **BP_OreVein** into the level.
- In the **Details Panel**, set the **OreVeinID** to determine the type of ore.
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4 Place a Pickaxe in the World

- Locate **BP_Item** in the **Content Browser**.
- Drag **BP_Item** into the level.
- In the **Details Panel**, set the **ItemID** to a pickaxe (e.g., "Pickaxe_Basic").
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5 Test the Mining System

- Press **Play** to start the game.
- Equip the **Pickaxe** from the inventory.
- Approach the **Ore Vein** and **strike it with the pickaxe**.
- Observe the mining mechanics in action, including **ore depletion, loot drops, and experience gain**.

Congratulations! The Mining System is now active in your project. From here, you can customize settings, expand the data tables, and refine the mechanics to fit your game.



Core Features

- ◆ Fully Modular & Data-Driven System
 - Uses data tables for defining ore types, pickaxes, loot drops, skill levels, and mining mechanics.
 - Easily expandable—add new ore veins, tools, and loot with minimal effort.
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- ◆ Customizable Mining Mechanics
 - Supports harvesting per hit and/or on empty to fit different gameplay styles.
 - Depletion settings allow ore veins to:
 - Change material upon depletion.
 - Swap to an empty mesh.
 - Fully disappear.
- ◆ Skill & Progression System (Optional)
 - Experience gain per hit or when the ore is depleted.
 - Skill levels for mining, which can be enabled or disabled in settings.
 - Pickaxes can have mining level requirements and bonus yield to encourage progression.
- ◆ Dynamic Loot System
 - Customizable additional loot drops with rarity-based drop chances.
 - Chance-based spawning allows for rare gems, crystals, or other bonus items.
- ◆ Pre-Configured & Customizable Assets
 - 6 ore nodes, each with a corresponding harvested ore item.
 - 3 pickaxes, each with adjustable mining efficiency and skill requirements.
 - 5 additional loot items, including 3 crystals and 2 rock types.
 - Easy to expand with custom assets
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- ◆ Visual & Audio Effects for Immersion
 - Niagara FX for mining impact, ore spawn, and level up effects.
 - Customizable sound effects for pickaxe swings, mining hits, ore spawning, and depletion.
 - Optional screen shake for an added sense of impact.
- ◆ Easy Integration with Existing Systems
 - Comes with a basic inventory system that can be easily swapped out for your own.



Installation Instructions

Follow these steps to install the Mining System in your Unreal Engine project.

1 Migrate the Mining System into Your Project

1. Open the project that contains the Mining System asset pack.
2. In the Content Browser, locate the Mining folder.
3. Right-click the Mining folder and select Migrate.
4. In the pop-up window, ensure all necessary assets are selected, then click OK. (**Uncheck the Demo Folder**)
5. Choose the Content folder of your target project as the migration destination.
6. Click Save All to ensure all migrated assets are properly stored in your project.

2 Add the Mining Component to Your Player Character

1. Open your Player Character Blueprint.
2. In the Components Panel, click Add Component and search for AC_Mining.
3. Select AC_Mining to attach it to your character.
4. Click Compile & Save to apply changes.

3 Set Up an Ore Vein for Mining

1. In the Content Browser, locate BP_OreVein.
2. Drag BP_OreVein into the level.
3. In the Details Panel, set the OreVeinID to define its type (e.g., "Iron", "Gold").

4 Add a Pickaxe to the World

1. Locate BP_Item in the Content Browser.
2. Drag BP_Item into the level.
3. In the Details Panel, set the ItemID to a pickaxe (e.g., "Pickaxe_Basic").

5 Test the Mining System

1. Press Play to start the game.
2. Equip the Pickaxe from the inventory.
3. Approach the Ore Vein and strike it with the pickaxe.
4. Observe the mining mechanics in action, including:
 - Ore depletion.
 - Loot drops.
 - Experience gain (if enabled).

Final Steps

 Your Mining System is now fully installed and functional!

From here, you can customize ore types, expand the data tables, adjust skill settings, and modify visual/auditory feedback to fit your game's design. Learn more about customization options on the next page.



Customization Options

The Mining System offers extensive customization options, allowing developers to tailor the mechanics, visuals, and overall experience to fit their game. Below is a breakdown of the key settings available in AC_Mining, DT_OreVein, DT_MiningItem, and Inventory Settings.

1. AC_Mining (Mining Component Settings)

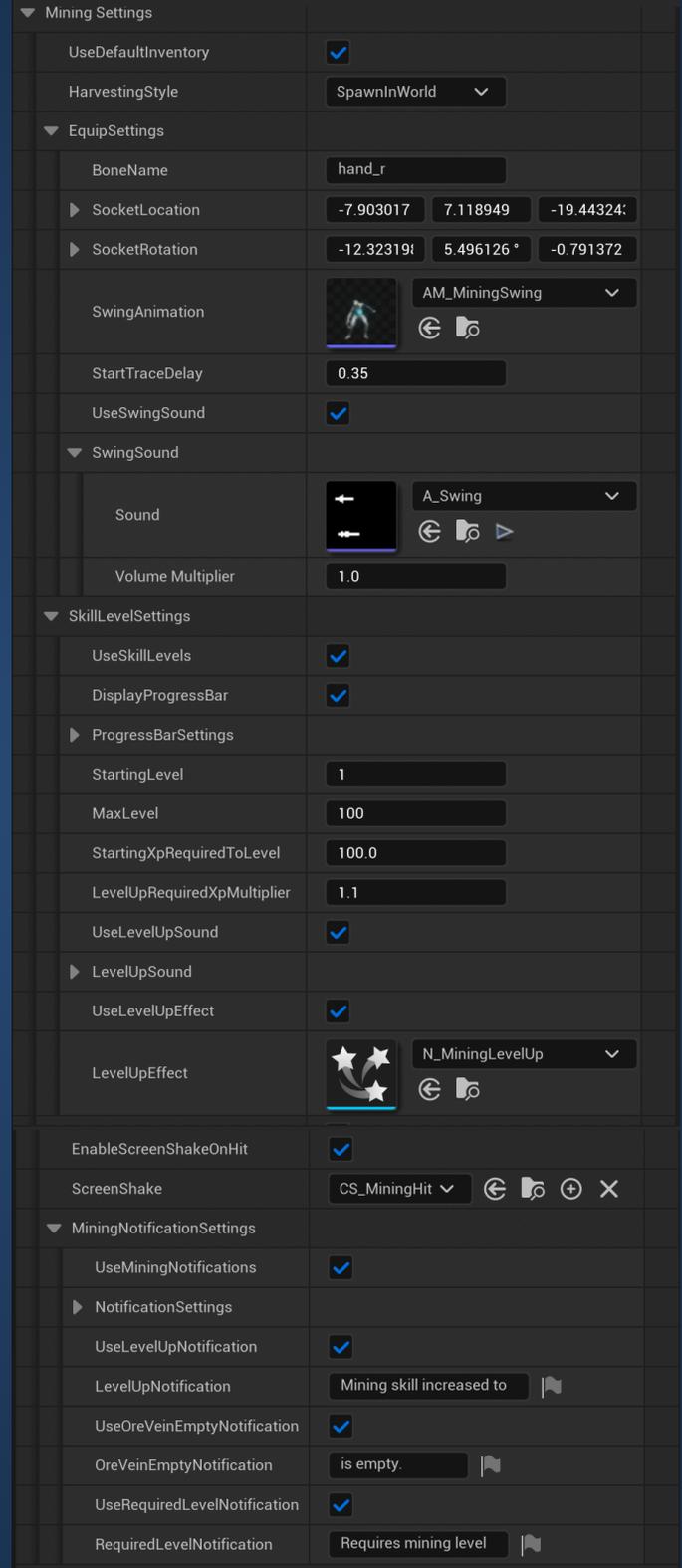
The AC_Mining component, added to the player, provides settings for mining behavior, animations, and experience gain.

- Mining Style – Choose between two mining methods:
 - Spawn in World – Ore and additional loot spawn in the world.
 - Auto Add to Inventory – Harvested ore is added directly to the player’s inventory.
- Experience Gain Mode – Determines when XP is awarded:
 - Per Hit – XP is awarded with each mining hit.
 - On Empty – XP is awarded when the ore vein is depleted.
- Use Skill Level Requirement – Toggle whether skill levels are required to equip pickaxes.
- Use Customization Settings for Mining Effects – Enables custom VFX for mining.
- Sound & Animation Settings:
 - Set the Mining Swing Sound.
 - Set the Mining Hit Sound Array (Randomized selection per hit).
 - Adjust volume and pitch variation for dynamic audio variation.
 - Select the Mining Hit Animation.
- Effects Settings:
 - Choose the Mining Hit Effect.
 - Enable/disable On Ore Spawn Effect for world-spawned ore.

2. DT_OreVein (Ore Vein Data Table)

The DT_OreVein data table controls the properties of different ore nodes.

- OreVeinID – Unique identifier for each ore vein type.
- Ore Item ID – Defines what ore is harvested when mined.
- Pickaxe Requirement – Set a required Mining Level for extraction.
- Min/Max Yield Per Hit – Define the amount of ore collected per mining hit.
- Additional Loot System:
 - Enable/disable Chance-Based Additional Loot.
 - Define a list of extra items that may drop, each with:
 - Drop Chance (%).
 - Min/Max Quantity.





- Depletion Behavior (OnOreVeinEmpty):
 - Change Material – Changes the ore’s material to a depleted version.
 - Change Mesh – Replaces the mesh with a depleted version.
 - Destroy Mesh – Removes the ore node upon depletion.
 - No Change – Keeps the ore node visually intact.

3. DT_MiningItem (Mining Tools Data Table)

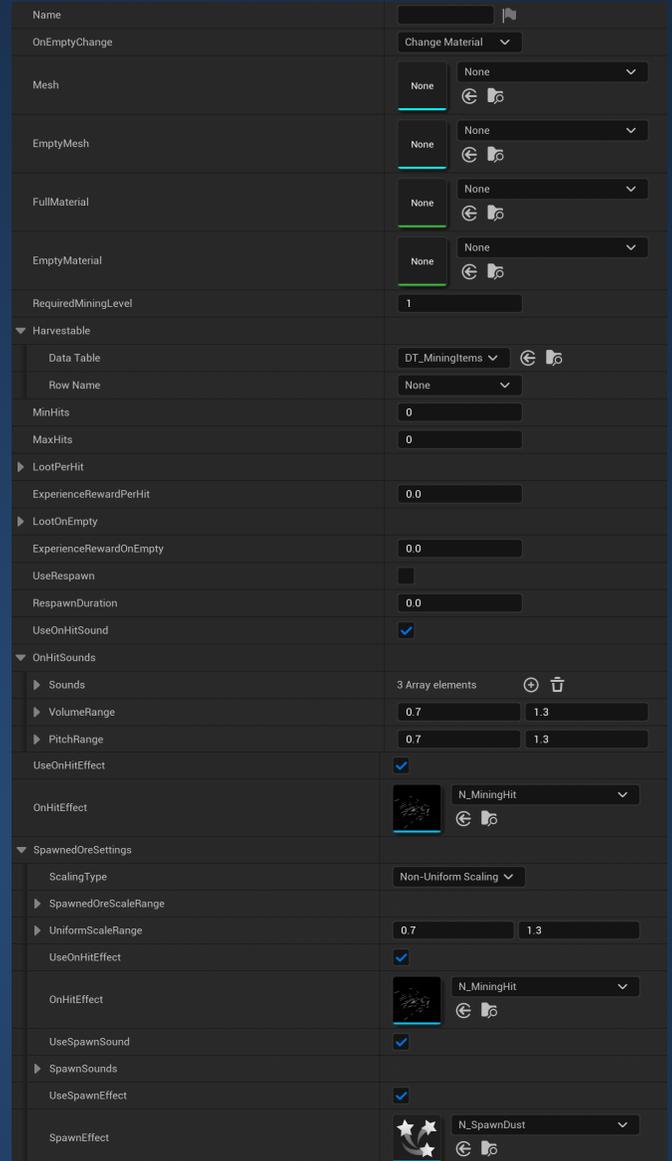
The DT_MiningItem data table controls pickaxes and their mining effects.

- ItemID – Unique identifier for each pickaxe.
- Mining Level Requirement – Minimum skill level needed to equip.
- Harvesting Modifiers:
 - Increase Min Yield Per Hit – Allows better pickaxes to increase minimum yield.
 - Increase Max Yield Per Hit – Allows better pickaxes to increase maximum yield.
- Durability (Future Expansion) – Placeholder for durability mechanics in future updates.

4. Inventory Settings (AC_DefaultInventory)

The mining system integrates with the AC_DefaultInventory, allowing easy modification of inventory behavior.

- Pickup & Drop Settings:
 - Enable/disable Pickup Animation when collecting items.
 - Enable/disable Inventory Sound Effects for adding/removing items.
- Notifications:
 - Customize Pickup Notification Text (e.g., "+1 [ItemName]").
 - Adjust Notification Duration.
- Inventory UI:
 - Toggle tooltips, stack splitting, and right-click menus for a smooth user experience.



Final Notes

These customization options ensure that the mining system can be easily adapted for any game. The included data tables make it easy to expand with custom ore types, loot, and mining tools.

If you are using the default inventory, further customization options are available in AC_DefaultInventory. Select the Inventory Settings variable, and in the details panel you can adjust things like notifications, pick-up style, animations/sounds, etc.

By overriding the core inventory functions (AddMiningItemToInventory, RemoveMiningItemFromInventory), the mining system can be fully integrated with any custom inventory setup. This flexibility ensures that the Mining System can adapt to any gameplay style or project requirements without breaking existing systems.



Advanced Usage

The Mining System is designed to be modular and easy to integrate with other inventory systems. If you are using a custom inventory system, you can override the built-in functions to ensure seamless integration.

Integrating a Custom Inventory System

By default, the mining system includes AC_DefaultInventory, a basic inventory setup designed for easy testing and quick implementation. However, if you are using your own inventory system, you will need to override a few key functions to replace the default item management logic with your own.

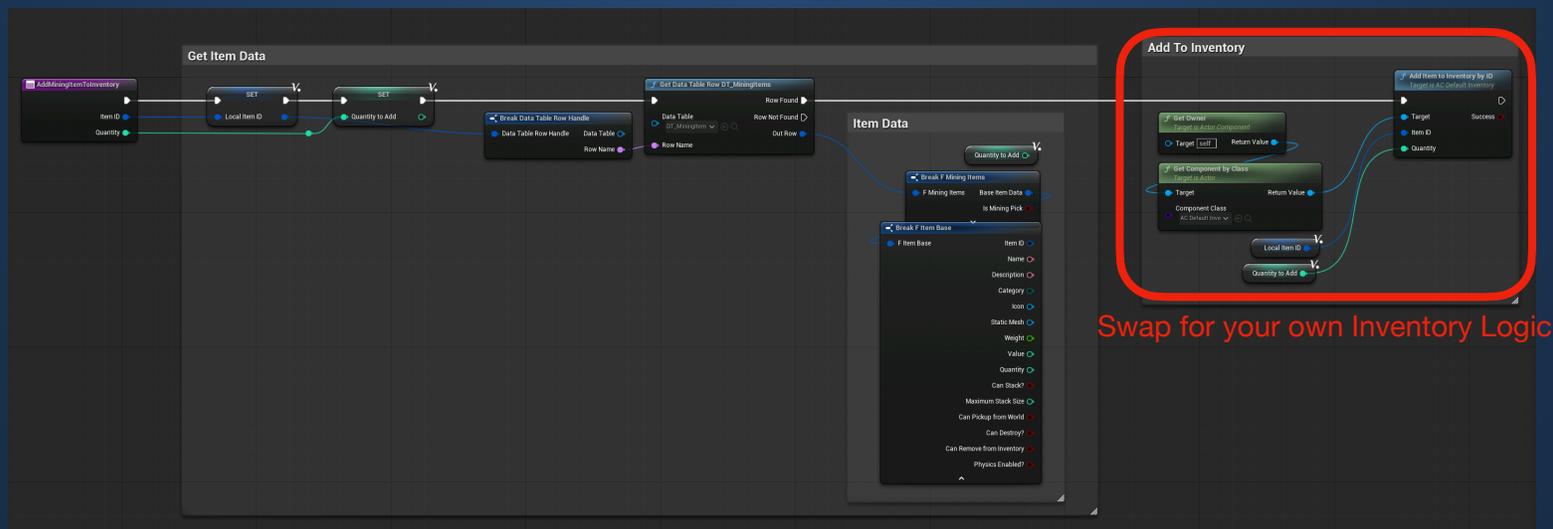
Overriding The Inventory

In AC_Mining there are the following inventory related functions that you can easily replace with your own Inventory functions. Open each of the below function in AC_Mining, and replace the logic with your Inventory functions.

- AddItemToInventory
- RemoveMiningItemFromInventory
- AddMiningArrayToInventory



The Inventory functions are set up to expose the item data for easy integration.





Quick Reference Guide

Actor Components	
AC_Mining	The component that adds mining functionality to the player character. Add it to your player character blueprint.
AC_DefaultInventory	The component that adds inventory functionality to the player character. AC_Mining will add this automatically if you have "UseDefaultInventory" set to True.
Blueprints	
BP_OreVein	The blueprint that represents Ore Veins (Mining Nodes) in the world. Drag into the world and set the OreVeinID to set the vein.
BP_MiningItem	The blueprint that represents Items in the world. Drag into the world and set the ItemID to set the item.
Structs	
F_OreVeinData	The struct that contains Ore Vein data, used for DT_OreVein
F_MiningItemData	The struct that contains Item Data. Used for DT_MiningItems
Data Tables	
DT_OreVein	The data table that allows you to add custom Ore Veins (Mining Nodes), and/or edit existing ones.
DT_MiningItems	The data table that allows you to add custom Items (Pickaxes or Ore, etc.) and/or edit existing ones.



Support & Contact

For any questions, issues, or feedback, please contact us at:

support@unreal-toolkit.com

Explore all of our assets on: Unreal-Toolkit.com