

Enhanced Development

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General install

The general procedure for installing the mod is as follows:

1. Extract the .zip file somewhere temporarily (desktop works)
2. Enter the folder that you extracted until you go into the folder that contains README.md, this document and a number of folders starting with "ED-", these folders are the different modules that are available in this mod.
3. Find your Rimworld mods folder. This will be wherever you installed/extracted Rimworld to. Then go to the "Mods" folder will be inside it. It will contain a folder called "Core" and folders for any other mods that you have installed previously.
4. If you have an old version please delete the existing ED- Modules. (or move them, see next section on Upgrading)
5. Copy the modules (the different "ED-" folders from step 2) into the Rimworld mods folder (found in step 3)
6. Open Rimworld and Enable any of the modules that you want to use. **Note that some modules will have requirements that must be activated before they are activated, as noted in their description.** Most modules will depend on "ED-Core", so this will usually be the first thing you enable.
7. Restart Rimworld
8. Play the game

If you are having issues please Read this FAQ section in this document.

Different load locations

In the more recent versions of Rimworld it is possible to specify the location that the configuration and save files will be located.

General Upgrading Procedure

I can't guarantee that upgrading mid game will work and I would suggest that it would be better to start a completely new colony.

That said a lot of the time it has worked perfectly and if you want to try this I suggest doing the following steps:

1. Before upgrading create a save called something like "Pre upgrade" of your current colony.
2. Follow the Installation instructions in the previous section, with the exception of moving the existing ED modules instead of deleting them.
3. Fire up the game and test if it is working, if so then all is good.
4. If not you can delete the new modules that you installed and copy back the old working modules
5. Load your saved game and de-construct all of the buildings that were added by this mod
6. Save the game

7. Follow the Installation instructions in the previous section again.
8. Fire up the game again and see if it works, if so you should be able to now build the new buildings
9. If it still does not work you will have to make a choice to continue with your current colony or get the updated version now.

FAQ and Problem Solving

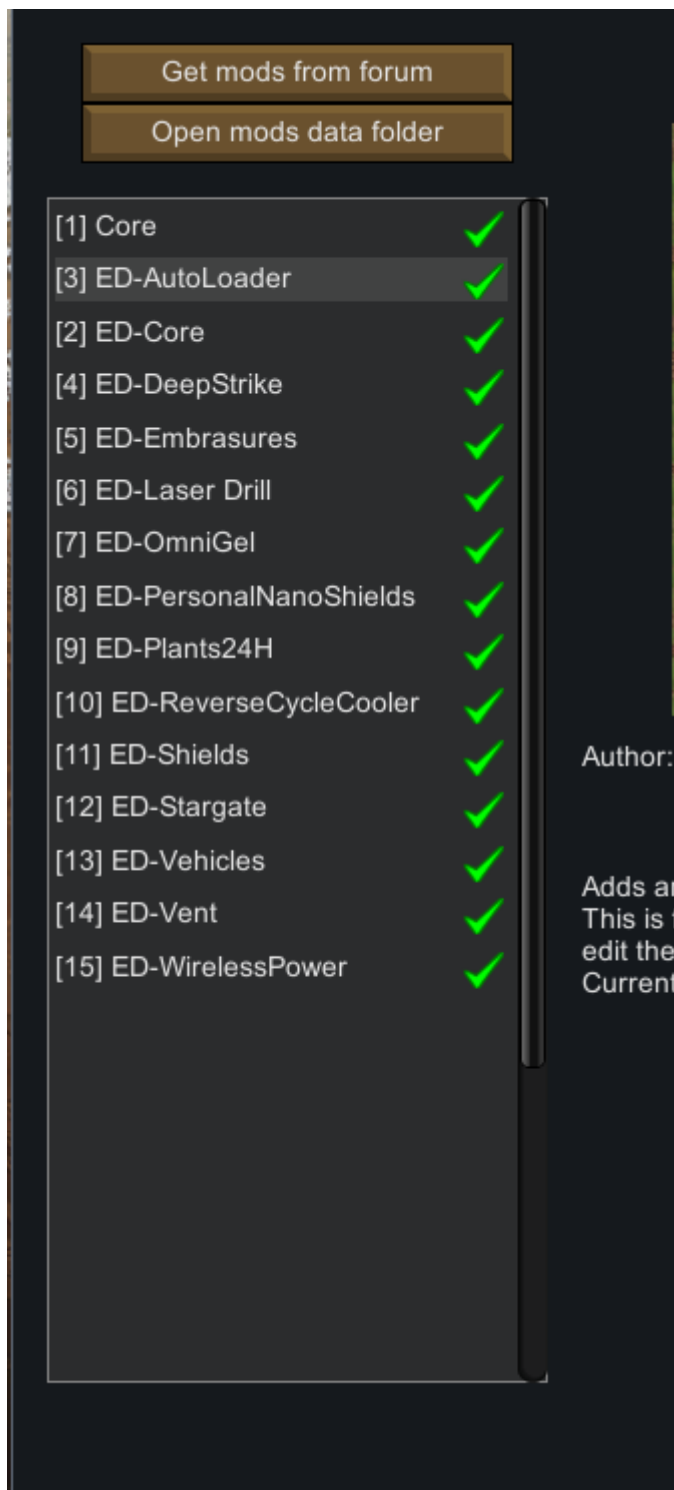
If you are having trouble with the mod this is the place to check first.

Q: I like part of this mod but hate the idea of X

A: The mod has been designed with separate modules for the different parts of the mod so you can enable what you want without having to use everything. Check the description of a module to check for any dependencies on other modules that are required.

Q: Something is not working right, or I am getting errors like "Could not find a type named Enhanced_Defence.###" or when I construct a building it just disappears. Really if anything else is not working it is usually best to check this first.

A1: This issue can also mean that the mod is unable to find .dll file that contains the code of the mod. The most common cause of this is loading the modules in the wrong order, or not having the core module enabled at all. You will want to make certain that ED-Core is loaded before any of the other ED mods. The load order is shown in numbers next to the name of the mod, you will need to make certain that ED-Core has a lower number than any of the other ED- Modules that list ED-Core as a requirement. You can do this by disabling and enabling mods until they are in the needed order. After this you will need to restart the game before it will take effect.



A2: If that does not fix it where did you download the mod from? If you got it directly from GitHub that was probably the wrong move. The GitHub releases are work in progress, exactly what I am working on now and I make no guarantee that they will work at all. You should go and get the latest stable release from the [Forum](#) or the [Nexus](#).

A3: You can also check that you have the .dll files. You can check this by going to the `\RimWorld\Win\Mods\ED-Core\Assemblies` folder, In it will be Place .dll here.txt. If there is not .dll file here, usually called `Enhanced_Defence.dll` then you need to download a binary release from the [Forum](#) or the [Nexus](#). This should not happen in future as I

have recently (July 2015) switched GitHub to have the full Binary release, no guarantee if it is stable though, but if you really cant wait to test things give them a go, but I would not recommend this for most people.

Q: I am still having problems.

A: Your best bet is to log an issue on [Github](#), you can also post on the forum thread, but logging an issue is helpful to avoid it getting buried with other responses.

If you have errors, rather than screen shots please include the log file.

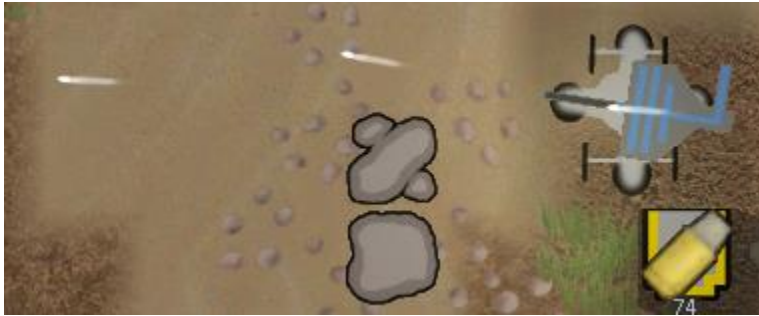
`\RimWorld###Win\RimWorld###Win_Data\output_log.txt`

Also including the `ModsConfig.xml` can be helpful so I can see your mod configuration.

`C:\Users\USERNAME\AppData\LocalLow\Ludeon
Studios\RimWorld\Config\ModsConfig.xml`

Please also include the version of the mod and the version of Rimworld you are using.

ED-AutoLoader



Adds an Autoloader that can be used to supply things to some of the buildings in this mod. This is functionally identical to a Hopper in the base game, but is helpful for comparability to avoid having to edit the stock Hopper.

How to change Turrets

One of the main uses of this is to supply ammunition to turrets, this is a list of the changes that need to be made to convert a turret to using this system.

Change:

```
<ThingDef Class="Jaxxa_EMRG.MyThingDef" ParentName="BuildingBase">
```

Add between the building tags:

```
<building>
<wantsHopperAdjacent>true</wantsHopperAdjacent>
</building>
```

Add Tags:

```
<ammoAmount>5</ammoAmount>
<ammoType>Missiles</ammoType>
<thingClass>Jaxxa_EMRG.Building_TurretGun_Ammo</thingClass>
```


DeepStrike



This adds a Drop Pod system to the game, allowing you to build a command building to deploy your Colonists and resources to any point on the map almost instantly.

How To use

1. Research "Orbital Drop Command".
2. Build a "OrbitalCommand" building and power it up.
3. Load Colonists or Resources.
 - 3a. Load Colonists by standing them next to the building OrbitalCommand building and pressing the load colonist button.
 - 3b. Load resources by placing them in Autoloaders attached to the OrbitalCommand building and pressing load resources.
4. Place a "Orbital Beacon" (builds instantly and free)
5. Press the Deepstrike button on the Orbital Beacon to drop pod down your stored resources and colonists.

ED-Embrasure

Embrasures is a mod that adds 4 new wall types (one for metal, stone, wood and logs). The walls have openings for colonists to shoot at their enemies, while not allowing any to pass through. Basically, they look like holes in the walls but they work more like like impassable sand bags (it looks like a hole in each block but the whole block is open to let through bullets).

ED-Laser Drill



Adds a Laser Drill that allows the creation of new steam vents, and a Laser laserFill that allows you to remove unwanted steam vents. Both of these operations will take a considerable amount of time.

ED-OmniGel



This mod allows you to have a renewable source of Metal and Stone. You start by planting and harvesting the OmniGel plant. You then need to research and build a MK1Replicator. This is a workbench that allows you to transform the OmniGel that you harvest into slag or rock. You then use this in the standard rock cutting or slag refining benches are in rimworld to get usable materials.

Recipes

MK1:

10 OmniGel -> 1 ChunkSlag
10 OmniGel -> 1 ChunkRock

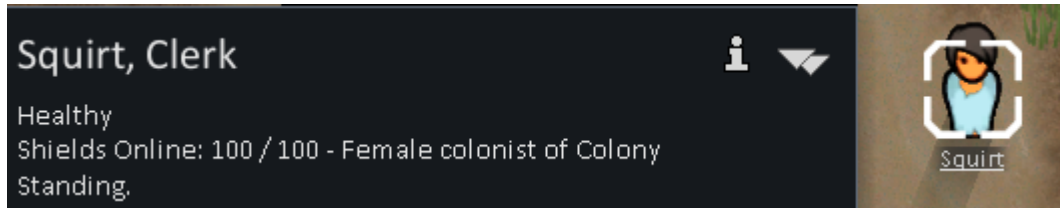
MK2:

75 OmniGel -> 50 Metal
75 OmniGel -> 50 StoneBlocks
75 OmniGel -> 50 Silver

MK3:

75 OmniGel -> 1 Uranium
75 OmniGel -> 1 Shells
75 OmniGel -> 1 Medicine

Personal Shields



Adds Personal Shields into the game. Allows you to construct a building capable of upgrading your colonists to have a personal shield capable of protecting them from damage.

How to use

1. Research the personal shields
2. Build the Colonist Upgrade Station
3. Draft a colonist and have them stand near it
4. Press "Upgrade to Nanno Shield" button to have that individual colonist upgraded to use shields (they should now show the shield status) - The upgrade building will need to recharge itself before it can do this again. Repeat this for all colonists
5. To recharge shields have them stand near the building when it is charged, if their shields are offline it must charge to 100% before it will come online again.

Tip: I like to build a upgrade station near the kitchen table so they recharge when eating, all upgrade building share the same charge with each other.

Building multiple upgrade stations will give you multiple positions to Upgrade and Recharge from, but will NOT allow you to recharge faster.

Plant 24H

If you want to add the ability for another plant to grow 24Hours you can do this by only editing XML.

1. First you need the plant XML that you will edit. This can be from another mod that adds plants, or you can create a new mod that will override the definitions, by copying the plant definition you want to edit from either the rimworld core(probably best to not edit this directly) or another mod.
2. In that new mod change the thingClass of any plants that you want to edit in xml to be

```
<thingClass>Enhanced_Defence.Plants24H.Plant</thingClass>
```

Most files will have this defined in a Base Plant so changing just the one will change every plant in the file.

3. Make certain that this mod is loaded after "ED-Core", and anyother mods that you based it on.

That should be all you have to do, test it and let me know how it goes.

For balance reasons you may want to reduce the speed that plants are growing at.

Reverse Cycle Cooler

ED-Shields



About:

This mod allows you to place shield generators. They are expensive and power hungry but can really strengthen your defences. The shields will stop projectiles that try to enter it, but allow weapons to be fired out.

How to use:

After activating the mod and starting to play the first thing you will have to do is the research "Basic shield generator" this will unlock the "Basic shield" building. After placing a Shield and providing it with enough power it will enter a warmup state. During this time there will be a countdown timer showing you how long until the shield is activated (if you select the shield). After this time has elapsed the shield will activate showing a circle on the screen that shows where is covered by the shield. This shield will stop all projectiles that enter it, but allow you to fire out from within the shield. The shield will start with a certain amount of health and will increase until it reaches it's maximum health. This will be reduced whenever the shield is used to block a projectile. If the shield is reduced to zero it will have to complete the warmup phase again before it can block anything.

Details:

There are currently 4 Shields in this version of the Mod.

Standard Shield: This the standard shield generator and is almost identical to the only shield in Darker's original version of the mod.

Small shield: This shield required additional research. It is smaller in size, lower strength, uses less power and allows power to stand on it.

Fortress shield: This shield has been modified to only block indirect fire weapons. It will protect a large area from Mortars attack, but will allow bullets to pass through in any direction.

SIF Generator: Rather than creating a large circular shield this generator will create an small individual shield over each wall/door object.

The SIF shield will protect the following:

- Door
- Autodoor
- Wall
- WallConduit

- Sandbag
- Embrasure

Name	Strength	Radius	Power	Charging Power
Small shield	1000	2	500	1000
Standard Shield	2000	8	1000	1500
Fortress shield	8000	20	2500	5000
SIF shield	3000	8	1500	2500

Modding:

One of the main modifications that I made was making information about the shield to be read in from the XLM files rather than hard coded into the C# code. Because of this it should be easy to make your own shield generator of any size or strength.

The new XML variables that I have added that will be needed by shields are:

shieldMaxShieldStrength: Maximum shield strength

shieldInitialShieldStrength: Shield strength when going online

shieldShieldRadius: Radius of the Shield

shieldPowerRequiredCharging: The power when the shield is up but not at full strength

shieldPowerRequiredSustaining: The power used when the shield is up and at full strength

shieldBlockIndirect: Should it block projectiles that fly overhead

shieldBlockDirect: Should it block projectiles that fly direct

shieldFireSupression: Should it put out fires (in squares that it is blocking)

shieldStructuralIntegrityMode: Should it only work on walls

shieldRechargeTickDelay: How many ticks between recharging the shield by 1 (lower number will recharge faster)

shieldRecoverWarmup: How long to wait before starting to charge

colourRed: Float value, Colour between 0 and 1

colourGreen: Float value, Colour between 0 and 1

colourBlue: Float value, Colour between 0 and 1

ED-Stargate

The Stargate system allows you to transport materials over great distances, even between colonies.

The main way to get a Stargate is to Research and build it. Once you have done this you can use it for travel. The Stargate has a Capacitor and a buffer system. The Capacitor is charged with electricity and provides the power needed to establish a wormhole. the buffer stores the equipment and personnel that you want to sent to another Stargate.

You can add all close colonists into the buffer by pressing the Add Colonist button on the Gate UI panel. Pressing add resource will add any resources that are located in adjacent Autoloaders.

Once you have loaded the colonists / resources that you want you can press "Dial Out" and to complete the process of sending your team offworld. The capacitor will have to be recharged before this can be done again.

On a different (or the same) gate pressing "Incoming Wormhole" will cause the off world team to arrive at the selected destination gate.

Using this system it is possible to transfer personnel and equipment between colonies, establish mining / farming colonies to support a main colonies or completely evacuate a colony to a new location.

To assist you there is a second way to get a Stargate, the Offworld gate. This is build for free and instantly, when it is completed you can turn it into a full Stargate, at the cost of removing all colonists from the current map. This can be used to simulate an offworld team arriving at an uninhabited location.

To add to a gate: For colonists you draft them, stand them next to the gate and press add colonist. For resources you will have to build a Autohopper, load that with the resources you want and then press the add resource button.

ED-Turret Ammo



Adds the requirement for the base Mortars to require Ammunition to fire.

The Raider constructed Mortars during sieges will also require this but they start with a high initial Ammunition.

ED-WirelessPower



Allows the creation of a Wireless power grid.

Wireless power Nodes can transmit or receive power from the grid.

If the grid is overloaded it will completely shutdown all receiving nodes and require you to reactivate them.