

Rain Barrel Project

Intro: Rain Barrel Project

This will be an overview of how to setup your own rain barrels. This may not show 100% step by step since I've found there is a great variation to how you want your rain barrels to work and the setup you use. I will try to point out all the options and variations so you, yes YOU can decide how you want to do your setup.

To start, this setup cost me less than \$30 dollars to do with free barrels. You can do it for cheaper with one barrel or using other parts. I designed this to be able to be expanded (10 - or maybe more barrels :-D) and to include a pump.

This took me a week to do because I could not decide / find all the right parts but once I got one adding the other took me about an hour to do. I'd suspect that this could be done in a matter of an afternoon with all the parts at hand.



Step 1: Your type of Barrel

This step will determine what and how you do your next steps.

There are a few types of barrels:

- Plastic food barrels (usually pickles or olives come in them) They have a screw on top and are usually black in color. (see picture 1) These are also the safest if you are even thinking of using the water to drink out of. The rest should not or use caution actually drinking the water from them. I'll also talk about what I've found with types of roofs that you should be careful of.
- Plastic cleaning barrels They usually contain cleaning products for businesses since they buy them in bulk. Some may or may not wash out after cleaning them out. They usually have a 2" screw off cap or tapable cap and a 2 1/4" screw off cap. (this is the type I will be showing, they can be white, blue or sometimes another color)

- Plastic industrial barrels Usually are a few varieties, but all contain chemicals that are probably not safe for your garden or lawn and especially not safe for drinking. (They look like the barrels I'm using but are can be blue or another color)
- Metal barrels Can have a variety of different goodies in them. They do not make good rain barrels because they easily will rust with water.

Make sure to check with the person you are getting them from if you are unsure of what the contents were.

You're probably also wondering where can I find a barrel or two?!? Now that's the fun part, since every city is different there are some possibilities where you can get them. Usually you can get them for free or relativity nothing. If you have a food factory near by try them first, they usually have the pickle barrels or some sort of food barrel you could use The next few places you could try are some smaller industry places that use a lot of cleaner. i got mine from a smaller place that uses cleaner to clean out coloring that is safe on the environment.



Step 2: Lets Get Started Then --- Clean it out!

Clean it out with a house hold cleaner if its a used barrel, if its new you can skip this part if you want. I used Lysol to clean mine but you can use other cleaners.

WORD OF CAUTION be careful what you use to clean it some may leave a residue like bleach. Make sure you rise well with water either way.

Step 3: Decide your setup.

Oh there are so many setup possibilities that at this point I can only direct you which way to go. There are many sites out there and even government places that have instructions

Multi barrel system which can lead to an ever growing system - this is the system I'll be showing.



Step 4: Tools and Supplies

Obviously you need 1 or more barrels, my current setup is 2. All my supplies I bought at local hardware stores **Menards**, Home depot, Lowes, Fleet Farm, etc should have the same fittings all around the plumbing isle / home lawn sprinkler system isle.

Tools:

- Spade drill bits (depends on the size of your fittings)
- Drill
- Utility Knife
- Saw or PVC saw
- Hammer (in case you get frustrated :-D)
- Dremmel with wall cutting bit
- Supplies - again these will vary with your setup, some of these will be needed for all setups some will depend:
- For all setups you'll probably need:
- Marie caulk - a small tube should work for this installation but if you want to expand in the near future just get a bigger tube

- Pipe tape
- Mosquito window screen (make sure it is rated to keep mosquitoes out!)
- Some duct tape
- Plastic spray paint (optional but sometimes necessary for white barrels to keep algae from growing or to make it look pretty!)

Variations:

- 1 - 5' (or 10') 2" PVC pipe
- 2 - 3 way or T 2" PVC fitting
- 2 - 2" couplings
- 3 - 2" male threaded adapters
- 1 - 2" female threaded fitting.
- 1 - 10' 3/4" white Pressure PVC (not CPVC which is tan in color)
- 4 - 3/4" T fittings
- 1 - 3/4" fitting with one side threaded for valve
- 1 - brass 3/4" water faucet
- 2 - 3/4" caps for later expansion or added pump
- 4 - 1/2" sprinkler ribbed end (its gray and has 3/4" threaded end and a 1/2" end to slip a 5/8" hose over the end)
- 2 - 1/2" right angled sprinkler ripped end (its gray and has 3/4" threaded end and a 1/2" end to slip a 5/8" hose over the one end and can screw into the PVC in the other end.)
- 2 - double ended threaded PVC fitting (for the 1/2" right angled to fit into and then fit into the 3/4" PVC pipe)
- 2 - 3/4" right angled PVC fitting (threaded on one end and smooth on the other)
- 4 - 3/4" metal tube clamps
- 1 - 3" PVC plastic shower drain.
- 1 - 10' of clear plastic 5/8" tubing
- 1 empty cat litter container

optional

- PVC cleaner and glue (mine does not leak but I may do this when I do the final setup)
- Filter
- Additional / larger PVC
- Different fittings (IE brass)
- Pump
- Pressure tank
- "endless ideas?"

Step 5: Start the setup

Drill two holes into the side of each barrel. I did mine below the 2 1/4" opening. One 3-6" from the bottom and one about 3/4 of the way up the side of the barrel. Now the opening may be too small yet to screw the fitting into the side so you may have to slowly make it wider with the drill bit. Don't make it too wide that it doesn't screw in at all.

Before you screw in the adapter wrap it in pipe tape. Screw it in part way and add some of the marine caulk around the entire way and screw it in the rest of the way. After it is in put a bead around then entire fitting.

You could get away with one in this setup but you may have uneven filling of both barrels if you only have one from what I've read in other instructions but have not experienced it myself.

After thoughts:

I think i may change this part already. Instead of using the gray fitting below i may change it to a screw in PVC fitting. I will elaborate more on this later. If you have a barrel you can reach into

also put a bead of caulk around the inside. You could also use nuts and washers if you can reach in and tighten from the inside.

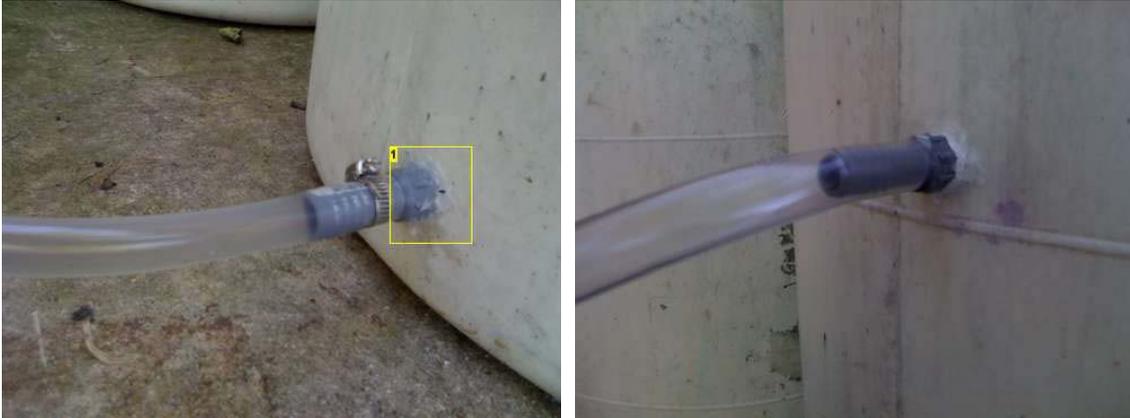


Image Notes

1. ribbed and threaded sprinkler attachment in side of barrel. Again I want to switch this out to a PVC screw in. Also make sure to put a bead of marine chalk around the fitting.

Step 6: Connecting the barrels together...

Put together the white assembly parts below. The T fitting that goes to the long PVC pipe consists of the 2 right angled screw in on one end and smooth on the other, 2 1/2" screw in to 3/4" screw in tab, 2 right angled gray ribbed fittings, and 1 3/4" PVC T.

I put thread tape on the ends of the threads before I screwed them together. For in between the smooth ends i used the 10' 3/4 PVC pipe and cut it into smaller pieces that I pushed together.

Use the 5/8" tubing to connect the now screwed in fitting to the right angled 1/2" fitting. Also since this will endure the most pressure put hose clamps around the screwed in fitting and the right angled fitting.

Use the 5/8" tubing for the upper hoses also.

After thoughts:

As I stated before, I want to now use the PVC to screw into the sides of the barrels. This part was a little more daunting than i wanted it to be. As you can see the whole assembly sticks out a little farther than I'd like it to also. With using the screw in fittings it eliminates the need for the 5/8" tubing and extra fittings. I could put a T at each barrel along the longer pipe. I would also put a shutoff valve at each barrel for easy cleaning or changing out a barrel with out emptying them both. Since right now it comes off the roof unfiltered.



Image Notes

1. capped end for later expansion or to put your pump on this side.
2. whole assembly detailed in additional picture.
3. water faucet which will be detailed in the accessories portion.
4. Upper tube connecting the barrels

Step 7: Setting up the catching system

Let me explain what I was trying (still in the works) to accomplish with this setup. I didn't like the fact that all the other barrel setups it went straight into one barrel. Thus you are always dependent on having that one barrel there and everyone states they need cleaning eventually that really isn't cool to have your most important factor out of the picture. The other reason I've done it this way is to filter out the water partly before it enters the storage (aka barrels) I haven't come up with a way to do this yet so if another creative person comes up with something I'll add it here!

I used a plastic Tidy cat litter container so any plastic one will do for this. Use the male and female 2" adapter for this part. Cut a hole in the center of the container to screw in the male adapter from the inside. Make sure to put pipe tape on the threads close to the middle of the fitting and some marine caulk. On the female adapter put marine caulk on the inner threads and screw the male and female adapter together. Put a bead of marine caulk on the inside of the container and on the underside to create the seal.

On the inside of the container put the 3" drain on top of the male fitting. (Note: i had to cut the inner part of the drain some to get it to fit over the 2" smooth male fitting. In the cover of the litter box cut 4 holes to let the water flow in. Cut a piece of window screen to wrap around the cover so when you put the cover back on it seals and secures the window screen on. I also put a bead of caulk around the top edge to secure it more.

This setup as you can see from the 2nd picture will then connect to the 3 way or T 2" fitting to go to the barrels.

Now for the part that I'm still not sure what way to go. I want to be able to filter the water before it enters the barrels. I want to put a pool filter in but I'm not sure if it will drain through the filter with out pressure. I'm trying to do this with out power at the moment to let gravity do its work. *Any ideas will be accepted for this part.*

Either way I'd recommend an initial catchment system to get most of the junk out before it goes in the barrels. If you are doing a simple 1 barrel system you could skip this step but I'd still recommend to do this so you have less cleaning to do later.



Image Notes

1. Female fitting with marine caulk to seal the bucket
2. This is just for some added support since it poured really hard one night and was making the bucket rock :-)

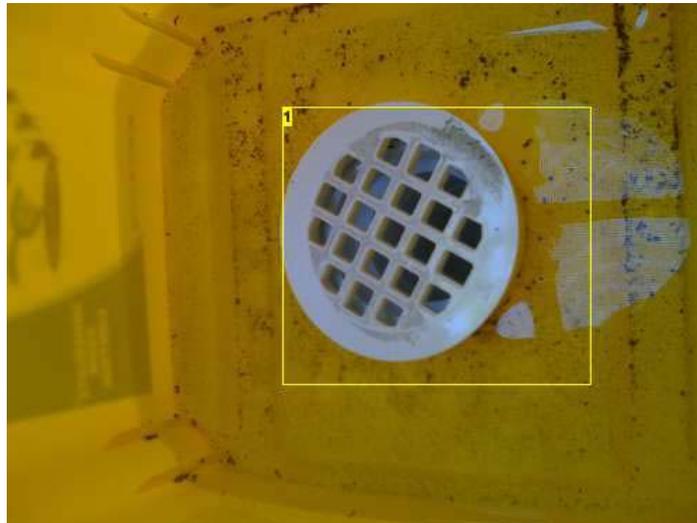


Image Notes

1. Raised Drain, some how need to filter the water?



Image Notes

1. Holes to let water in, along with the screen wrapped over the cover to keep bugs out

Step 8: Setting up the catching system - part 2

For this step you will use 2 male threaded fittings, the 5' or 10' 2" PVC drain pipe, 2 - 2" T fittings and window screen.

Put the male threaded fitting, coupling, T fitting and litter bucket together as shown in the picture

Make sure for the overflow spout you put the window screen in there to keep the bugs from coming in that way.



Image Notes

1. T Fitting to go to the other barrel and the catchment bucket



Image Notes

1. overflow that will need a hose to run out to the yard in case your barrels fill up.
2. window screen to keep bugs from getting in the barrels through the overflow. Its just over the pipe with the pipe pushed in the fitting
3. 2nd barrel connection

Step 9: Place your system

Now put your system under your designated downspout and start collecting! I can't show that part since the current place I'm in doesn't have any gutters so it collects from a corner of the roof that 70% of the water flows down.

Make sure you have your barrels off the ground so its easier to fill things up if your going to use gravity. a pallet should work for this or concrete blocks. Make sure it is also as level as possible since the barrels will weigh a lot (~500lbs or 8lbs per gallon)

