Storage space of ARM self-hosted runner is probably small #2412

New issue

Closed **kenji-miyake** opened this issue on Jan 8, 2022 · 25 comments

kenji-miyake commented on Jan 8, 2022 • edited Contributor

https://github.com/autowarefoundation/autoware/runs/4749425172?check_suite_focus=true

```
2022-01-08T18:56:43.4386749Z TASK [autoware.dev_env.ros2 : Install ros-galactic-desktop] ********************
2022-01-08T18:59:11.7105352Z ##[warning]You are running out of disk space. The runner will stop working when the machine runs out of disk space. Free space left: 15 MB
```

Or, the capacity allocated for Docker images is too small.

kenji-miyake mentioned this issue on Jan 9, 2022

feat: add basic Docker support Merged

autowarefoundation/autoware_core_universe_prototype#14

kenji-miyake commented on Jan 14, 2022 Contributor Author

@xmfcx Have you said that you'll change the AWS machine settings in the last meeting? I don't remember well.

xmfcx commented on Jan 14, 2022 Contributor

> @xmfcx Have you said that you'll change the AWS machine settings in the last meeting? I don't remember well.

Yes, I'll look into it right away!

👍 1

Assignees

No one assigned

Labels

None yet

Projects

None yet

Milestone

No milestone

Development

No branches or pull requests

2 participants

xmfcx commented on Jan 14, 2022 • edited ▾ Contributor

@kenji-miyake
Here is the report:

autowarefoundation organization has a GitHub Actions Runner registered with a name `AutowareFoundationGithubActionsRunner`.

This runner runs on an AWS `t4g.xlarge` instance. Amazon EC2 T4g instances are powered by Arm-based AWS Graviton2 processors.

It has 4 vCPUs and 16GiB RAM.

This binary was installed on it:
https://github.com/actions/runner/releases/download/v2.276.1/actions-runner-linux-arm64-2.276.1.tar.gz

```
ubuntu@ip-192-168-22-5:~$ df -h /
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        29G   25G  4.4G  85% /
```

▶ Having fun with ncdu inside the runner

Then I ran:

```
ubuntu@ip-192-168-22-5:~$ docker images
REPOSITORY                    TAG
IMAGE ID       CREATED        SIZE
ros                           galactic
775c4b4329a0   7 days ago     625MB
ubuntu                        20.04
9f4877540c73   7 days ago     65.6MB
autoware/model-zoo-tvm-cli    bleedingedge
2c1d92d7cf06   6 weeks ago    3.32GB
autoware/model-zoo-tvm-cli    bleedingedge-arm64
2c1d92d7cf06   6 weeks ago    3.32GB
autoware/model-zoo-tvm-cli    bleedingedge-cuda
051076320a77   6 weeks ago    7.1GB
autoware/model-zoo-tvm-cli    bleedingedge-cuda-
arm64   051076320a77   6 weeks ago    7.1GB
moby/buildkit                 buildx-stable-1
cb9b18fdb708   8 weeks ago    134MB
ros                           <none>
d1dc7d553def   3 months ago   624MB
autoware/model-zoo-tvm-cli    <none>
23e209b2f626   3 months ago   4GB
```

These docker images are occupying a lot of space.

They are generated by the runner probably, there are nothing related to them in the .bash_history file.

Then I've proceed to clean them a bit.

▶ Cleaning logs

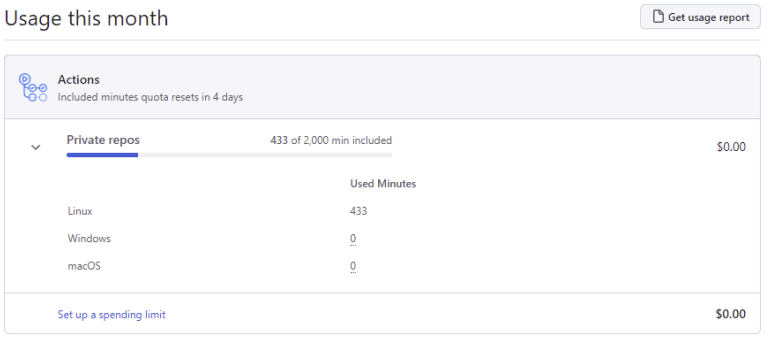
Now we have 9.0G space left. I could remove these images too but they would get redownloaded anyway probably.

We should probably look into https://docs.github.com/en/actions/hosting-your-own-runners/autoscaling-with-self-hosted-runners for autoscaling since right now all arm jobs go into this specific runner.

👍 1

xmfcx commented on Jan 14, 2022 Contributor

Also for x86_64 jobs we are using GitHub-hosted runners:



Hardware specification for Windows and Linux virtual machines:

2-core CPU
7 GB of RAM memory
14 GB of SSD disk space

And I think these machines probably won't be enough for building the Autoware and we will need to look into self-hosted ephemeral runners for these too.

kenji-miyake commented on Jan 15, 2022 Contributor Author

@xmfcx Thank you for your detailed report!

> Now we have 9.0G space left. I could remove these images too but they would get redownloaded anyway probably.

Hmm, it's too small... 😢
I want at least 30GB of free space, is it possible to extend the storage size of the VM?

> Hardware specification for Windows and Linux virtual machines:

Regarding GitHub-hosted runners, I guess it's minimum requirements.
The actual storage space can be seen here.

> And I think these machines probably won't be enough for building the Autoware and we will need to look into self-hosted ephemeral runners for these too.

Anyway, if there's no problem with the cost, it's nice.

xmfcx commented on Jan 15, 2022 • edited ▾ Contributor

> @xmfcx Thank you for your detailed report!
>
> > Now we have 9.0G space left. I could remove these images too but they would get redownloaded anyway probably.
>
> Hmm, it's too small... 😢 I want at least 30GB of free space, is it possible to extend the storage size of the VM?

@kenji-miyake I've increased the storage by 30GB, now we have 39GB empty space.

```
ubuntu@ip-192-168-22-5:~$ df -h
Filesystem       Size  Used Avail Use% Mounted on
/dev/root         58G   20G   39G  35% /
```

❤️ 1

kenji-miyake commented on Jan 18, 2022 Contributor Author

I confirmed that the CI is fixed in #8 (comment).

Thank you @xmfcx !

kenji-miyake closed this as completed on Jan 18, 2022

kenji-miyake commented on Jan 18, 2022 • edited

Contributor Author

@xmfcx I'm sorry but it seems we need a bit more space. 😢
https://github.com/autowarefoundation/autoware/actions/runs/1712036308

> You are running out of disk space. The runner will stop working when the machine runs out of disk space.
> Free space left: 60 MB

Seeing this result, we need 55GB+ free space? 🤔
https://github.com/autowarefoundation/autoware/actions/runs/1683139813
https://github.com/autowarefoundation/autoware/runs/4777125097?check_suite_focus=true#step:3:1110

> docker-build-and-push-amd64
> You are running out of disk space. The runner will stop working when the machine runs out of disk space.
> Free space left: 36 MB

> Filesystem Size Used Avail Use% Mounted on
> /dev/root 84G 30G 55G 35% /

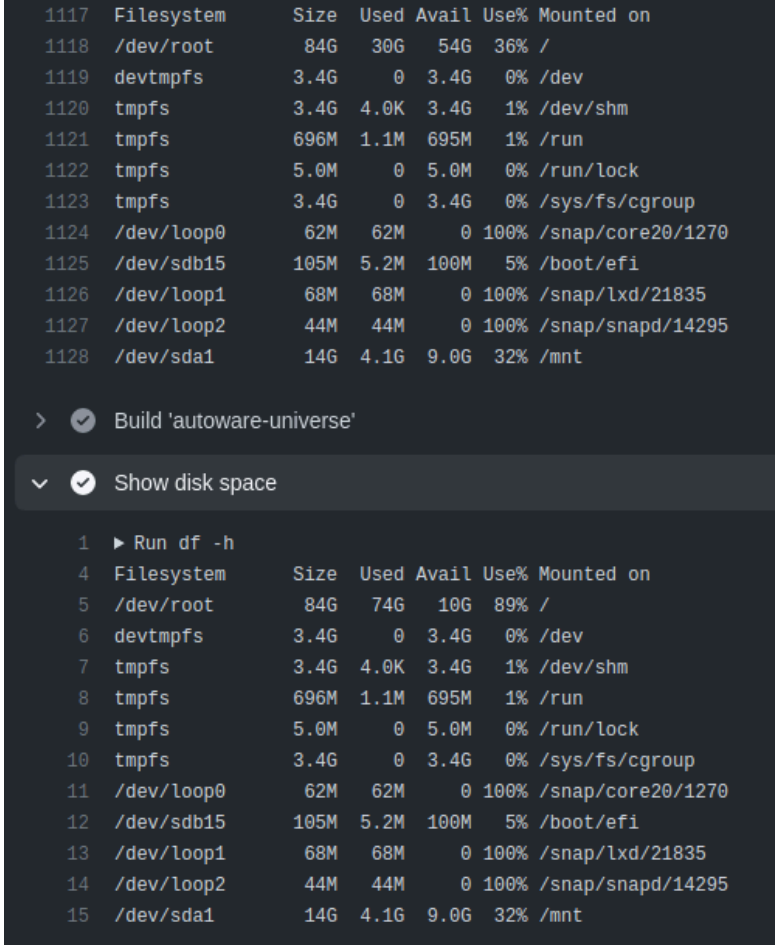
I'll investigate more.

kenji-miyake reopened this on Jan 18, 2022

kenji-miyake commented on Jan 18, 2022

Contributor Author

I measured the storage usage before/after building Autoware Docker images. It used `44GB` for `amd64`.
https://github.com/autowarefoundation/autoware/runs/4857291024?check_suite_focus=true



kenji-miyake commented on Jan 18, 2022 • edited

Contributor Author

@xmfcx Is it possible to add more 10~20GB space...?
Or if we drop building `prebuilt` images, probably the current space is enough.

xmfcx commented on Jan 19, 2022

Contributor

> @xmfcx Is it possible to add more 10~20GB space...?
> Or if we drop building `prebuilt` images, probably the current space is enough.

We could add but I think we should first try to reduce the space we are using. This is ok for single runner but for parallel runners it'll cost too much, not scalable. In autoware.auto 30gb total space for entire machine was enough.

kenji-miyake commented on Jan 19, 2022

Contributor Author

> We could add but I think we should first try to reduce the space we are using.

What do you think we can specifically do in order to save the space?

> In autoware.auto 30gb total space for entire machine was enough.

Yes, but the current `autoware.universe` depends on CUDA, which uses additional 10GB+. 😢

xmfcx commented on Jan 19, 2022 Contributor

We won't use cuda on CI, we should make it optional.

kenji-miyake commented on Jan 19, 2022 • edited Contributor Author

If so, we can't check the build of some perception modules in `autoware.universe`, is that okay?
Also, could you tell me why do you think making it optional is good?

xmfcx commented on Jan 19, 2022 Contributor

> If so, we can't check the build of some perception modules in `autoware.universe`, is that okay? Also, could you tell me why do you think making it optional is good?

The CI machines don't have Nvidia gpus and CUDA only works on nvidia gpus so we couldn't check them anyway.

Instances with gpus are much more expensive, we could set them to be checked with lower frequency if needed.

kenji-miyake commented on Jan 19, 2022 Contributor Author

@xmfcx

> The CI machines don't have Nvidia gpus and CUDA only works on nvidia gpus so we couldn't check them anyway.

Yes, we can't check the runtime behavior, but I think we can check the build.

> Instances with gpus are much more expensive, we could set them to be checked with lower frequency if needed.

We don't need GPUs.

👍 1

kenji-miyake commented on Jan 19, 2022 Contributor Author

@xmfcx So considering that, can we increase the space or cannot in any case?

xmfcx commented on Jan 19, 2022 Contributor

@kenji-miyake right now it has 60GB size, will increase it to 80GB. Since it is only a single machine, it shouldn't be a problem hopefully.

xmfcx commented on Jan 19, 2022 Contributor

@kenji-miyake Increased it, current configuration:

```
Filesystem      Size  Used Avail Use% Mounted
/dev/root        78G   46G   33G  59% /
```

👍 1

kenji-miyake commented on Jan 19, 2022 Contributor Author

Thank you! But it seems there is another issue... 😢 I'll investigate and fix it.
https://github.com/autowarefoundation/autoware/actions/runs/1714127510

kenji-miyake commented on Jan 19, 2022 Contributor Author

```
root@ip-192-168-22-5:/var/lib/docker# du -sh *
1.6M    buildkit
244K    containers
26M     image
76K     network
24G     overlay2
16K     plugins
4.0K    runtimes
4.0K    swarm
6.8G    tmp
```

```
4.0K    trust
38G     volumes
```

xmfcx commented on Jan 19, 2022 Contributor

```
root@ip-192-168-22-5:/var/lib/docker# du -
*
1.6M    buildkit
244K    containers
26M     image
76K     network
24G     overlay2
16K     plugins
4.0K    runtimes
4.0K    swarm
6.8G    tmp
4.0K    trust
38G     volumes
```

Yeah, I've also stated it in #2412 in collapsed logs.

kenji-miyake commented on Jan 19, 2022 Contributor Author

Oh, yes it was folded, sorry.

And after `docker system prune --all`

```
root@ip-192-168-22-5:/var/lib/docker# du -sh *
1.6M    buildkit
244K    containers
3.1M    image
76K     network
906M    overlay2
16K     plugins
4.0K    runtimes
4.0K    swarm
4.0K    tmp
4.0K    trust
24G     volumes
```

kenji-miyake commented on Jan 19, 2022 Contributor Author

```
root@ip-192-168-22-5:/var/lib/docker# docker p
CONTAINER ID   IMAGE
COMMAND                  CREATED        STATUS
PORTS     NAMES
7803dfa32a78   moby/buildkit:buildx-stable-1
```

```
"buildkitd --allow-i…"   15 hours ago   Up 15
hours             buildx_buildkit_builder-
b4526839-5106-4cdc-acdd-f9b9f0621fa00
6375c66e5d44   moby/buildkit:buildx-stable-1
"buildkitd --allow-i…"   16 hours ago   Up 16
hours             buildx_buildkit_builder-
40b5c38f-e9f0-4443-9284-3a00cfa622280
ee72b8df7fe6   moby/buildkit:buildx-stable-1
"buildkitd --allow-i…"   22 hours ago   Up 22
hours             buildx_buildkit_builder-
3db86ac2-f685-4338-a80e-3115c89fb7ff0
fa5f61ca1c6e   moby/buildkit:buildx-stable-1
"buildkitd --allow-i…"   23 hours ago   Up 23
hours             buildx_buildkit_builder-
201962b3-ef56-49fc-842b-51436675fc520
0401dfb53bfd   moby/buildkit:buildx-stable-1
"buildkitd --allow-i…"   30 hours ago   Up 30
hours             buildx_buildkit_builder-
10beb027-0751-4fcd-8071-9c9050145b870
```

Since it seemed that old containers are left, I stopped all containers and ran `docker volume prune`.

After that,

```
root@ip-192-168-22-5:/var/lib/docker# df -h
Filesystem       Size  Used Avail Use% Mounted on
/dev/root         78G   10G   68G  13% /
devtmpfs         7.7G     0  7.7G   0% /dev
tmpfs            7.8G     0  7.8G   0% /dev/shm
tmpfs            1.6G 1004K  1.6G   1% /run
tmpfs            5.0M     0  5.0M   0% /run/lock
tmpfs            7.8G     0  7.8G   0%
/sys/fs/cgroup
/dev/nvme0n1p15   98M  290K   98M   1% /boot/efi
/dev/loop1        30M   30M     0 100%
/snap/amazon-ssm-agent/3553
/dev/loop2        22M   22M     0 100%
/snap/amazon-ssm-agent/4047
/dev/loop6        89M   89M     0 100%
/snap/core/11803
/dev/loop11       89M   89M     0 100%
/snap/core/11996
/dev/loop7        61M   61M     0 100%
/snap/lxd/21804
/dev/loop4        61M   61M     0 100%
/snap/lxd/21843
/dev/loop8        58M   58M     0 100%
/snap/core20/1244
/dev/loop9        49M   49M     0 100%
/snap/core18/2252
/dev/loop0        58M   58M     0 100%
/snap/core20/1274
/dev/loop10       49M   49M     0 100%
/snap/core18/2289
tmpfs            1.6G     0  1.6G   0%
/run/user/1000
```

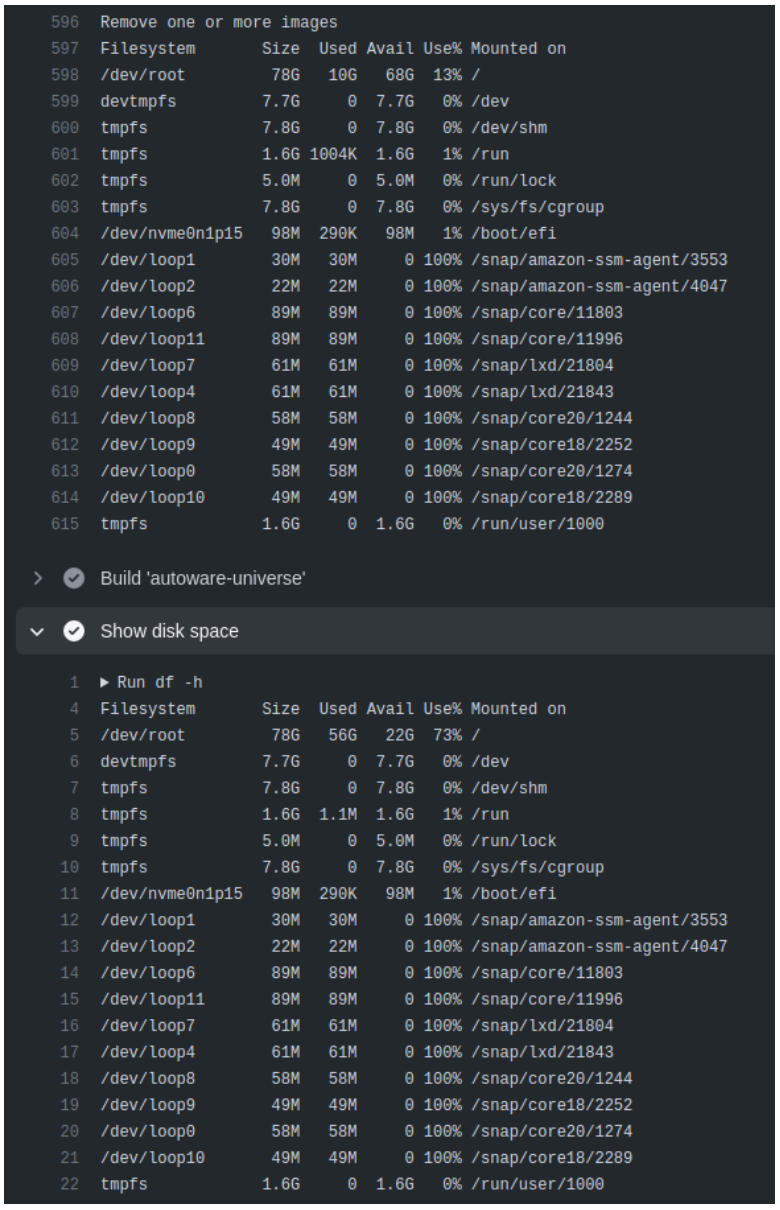
To avoid such problems, we should try ephemeral runners as you said.

kenji-miyake commented on Jan 20, 2022 • edited

Contributor Author

@xmfcx Succeeded!
https://github.com/autowarefoundation/autoware/runs/4870569220?check_suite_focus=true

It used about 46GB.



I'll try some more times to confirm there isn't an old and big cache left.

It seems to be cleaned up so far.
https://github.com/autowarefoundation/autoware/runs/4877651871?check_suite_focus=true

```
Filesystem       Size  Used Avail Use% Mounted on
/dev/root         78G  9.1G   69G  12% /
devtmpfs         7.7G     0  7.7G   0% /dev
tmpfs            7.8G     0  7.8G   0% /dev/shm
tmpfs            1.6G  980K  1.6G   1% /run
tmpfs            5.0M     0  5.0M   0% /run/lock
tmpfs            7.8G     0  7.8G   0% /sys/fs/cgroup
/dev/nvme0n1p15   98M  290K   98M   1% /boot/efi
/dev/loop1        30M   30M     0 100% /snap/amazon-ssm-agent/3553
/dev/loop2        22M   22M     0 100% /snap/amazon-ssm-agent/4047
/dev/loop6        89M   89M     0 100% /snap/core/11803
/dev/loop11       89M   89M     0 100% /snap/core/11996
/dev/loop7        61M   61M     0 100% /snap/lxd/21804
/dev/loop4        61M   61M     0 100% /snap/lxd/21843
/dev/loop8        58M   58M     0 100% /snap/core20/1244
/dev/loop9        49M   49M     0 100% /snap/core18/2252
/dev/loop0        58M   58M     0 100% /snap/core20/1274
/dev/loop10       49M   49M     0 100% /snap/core18/2289
```

kenji-miyake closed this as completed
on Jan 23, 2022

mitsudome-r transferred this issue from autowarefoundation/autoware_core_universe_prototype on Jun 26, 2022

xmfcx mentioned this issue on Oct 21

`No space left on device` on `docker-build-and-push-arm64` workflow #5355

Closed

3 tasks